# THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS

A STUDY OF THE MOTOR-BUS AS A COMPETITOR OF THE RAILROADS

J. E. SLATER

HE CITY HOUSING CORPORATION AND "SUNNYSIDE"

RICHARD T. ELY

IMPROVEMENTS IN THE MECHANISM OF PUBLIC UTILITY VALUATION

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RENT AND INTEREST AS SHARES IN THE PRODUCT OF ENTERPRISE

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# A STUDY OF THE MOTOR-BUS AS A COMPETITOR OF THE RAILROADS

*By* J. E. SLATER

THE subject of motor-bus transport has far too many ramifications to be included in a single article. The problems of the use of highways, competition with steam and electric lines, regulation by state and federal authorities, all present most interesting opportunities for study and analysis. The purpose of this article is to analyze the possibilities of the bus as a competitor of the steam railway, to measure the extent of that competition, to seek reasons for success or failure, and to determine what practical rather than legislative measures should be adopted which will best control the situation in the interests both of the public and of the railways.

## *I. Decline of Passenger Traffic on Steam Railways*

The decline in the volume of passenger traffic on the steam railroads of the United States is one of the chief problems confronting these lines today. The total number of passengers carried reached a peak in 1920 and has decreased since that time. (Table I). The passenger-miles also reached a peak in 1920, when the figure was 46,848,667,987, and since have dropped to approximately 35,500,000,000 in 1922 and 36,000,000,000 in 1924.

This drop of almost 25% in the volume of passenger business is confined, to a large extent, to one class of the passenger traffic. While the total number of passengers carried has declined, there has been a tendency upward in the number of commuter passengers. Figures are not available showing the number of passengers divided between commutation and other classes prior to the year 1922 for the country as a whole. Since 1922, however, the number of commuter passengers carried has increased 2% while the number of other passengers has decreased 8%. The statistics of individ-

ual railroads carrying a large number of commuter passengers show a steady increase in the volume of this type of traffic. In addition to an increased commutation passenger business, there has been a larger long-haul passenger business traveling in Pullman equipment.

The statistics of total passengers carried, therefore, do not indicate the type of passenger business that has been lost. This is the local, short-haul traffic other than the commutation traffic. When figures are available indicating the loss in this particular class of traffic for a long period of time, they clearly show that the tendency downward in the short-haul business, other than commutation, has been going on in some sections for 10 years. On the New York, New Haven and Hartford Railroad, there has been a drop of approximately one-third in the local traffic from 1914 to 1924. Since the New Haven is the third or fourth among the railroads in the country in the volume of passenger traffic, these figures may be taken as representative. This downward tendency is further indicated by a report of sales of local tickets at 41 stations in one of the western states which shows a drop of 61% in the sales from 1920 to 1925.

While the causes of the loss of this class of passenger business are clear, the process by which it took place is by no means as clear. It is a universally accepted fact that the chief cause is the increase in travel by private automobile. If, however, members of the public are asked why they do not use train service to a greater extent, the reply in many cases undoubtedly will be that the service given by the railroads is insufficient. The process has been that of an endless chain, one cause reacting on another. That there has been a substantial decrease in the amount of passenger service, especially local service, is not to be doubted. The number of passenger train-miles in 1924 is less than that of 1916 by some ten million. This, however, is a small percentage and does not in any way indicate the extent of reductions in local-train service. Railroad men readily admit that there have been substantial reductions in the amount of service provided. They can usually justify the reduced service by proof of the loss of business. We find, therefore, a loss of business due to reduction in service and a reduction in service due to the loss of business. Just where the chain started cannot be definitely ascertained. There is little doubt, however, that the drop in the amount of business came first, because automobile competition has been a serious factor for some time. Furthermore, railroad managements do not have a habit of taking off trains which are earning their way. Moreover, the drop in the local short-haul business has been accentuated from year to year by the increase in the number of private automobiles and by the steady improvement in the condition of the highways.

TABLE I. TOTAL NUMBER OF PASSENGERS CARRIED BY CLASS I RAILROADS OF THE UNITED STATES, 1916-1924*

| Year | Number of Passengers |
|---|---|
| 1916 | 1,005,954,777 |
| 1917 | 1,066,638,474 |
| 1918 | 1,084,997,896 |
| 1919 | 1,177,820,454 |
| 1920 | 1,234,862,048 |
| 1921 | 1,035,496,329 |
| 1922 | 967,409,205 |
| 1923 | 986,913,075 |
| 1924 | 932,678,462 |

*Statistics of Railways of United States, Interstate Commerce Commission.

### *The Entrance of the Motor-Bus*

Within the last few years, however, and especially during the last four

years, a new factor has entered the situation. This is the motor-bus. Competition by commercial passenger vehicles came prior to this time, but the competion of the jitney and of the five- or seven-passenger touring car was of more or less temporary character and on the whole is not a serious factor in the situation. Recently, however, the extent of motor competition has been altered by an enormous increase in the number of bus companies operating large, comfortable, and economical busses with capacity of from 15 to 30 passengers. In a recent survey in the *Railway Age,* it was estimated that there were 6,500 bus companies in the field at the present time. In 1925 it was estimated that there were 32,000 busses in operation. The use of the large bus has come into effect so recently that the scope of its operation is not clearly comprehended. Where they have been installed, some think they have taken a large amount of business from railroads, but the motor-bus is still too new to state definitely the extent of the competition.

Undoubtedly by far the largest portion of the loss in passenger business is chargeable to the private automobile. The convenience which it provides to the individual is so great that the relative costs of operation have become a negligible factor in the situation. Once an individual has bought his automobile, the inclination to use it intensively is almost irresistible; and in the overwhelming majority of cases, he will continue to use it even if it were proved that the out-of-pocket expenses were greater than those of traveling on a passenger train. Some of the railroads have studied what can be done to bring back the business lost to the private automobile. Indeed, efforts have been made to spread information about the high cost of traveling by the private automobile. However, an analysis of the motives of the private automobile traveler will clearly show that only in certain cases is he likely to give up the convenience of traveling in his own car for the sake of riding on a passenger train. Where there is constant traveling between two points and the total distance is substantial, the individual might in time become wearied with constant driving and return to a passenger train. But where the trips are more or less occasional and take the individual into different territories, the tendency to use his own machine is likely to continue. Only by providing a frequency of service that would not be justified by the additional traffic secured, can the railroads tempt the owner of the private automobile back to their lines. Because of this mental attitude of the automobile owner, the railroads have not lost in their commutation business, although they have lost heavily in their other local business. It would seem to be a fair conclusion, therefore, that the local short-haul business for distances up to 50 to 70 miles is lost to the railroad at least until the congested condition of the highways in various parts of the country causes traffic to become dangerous. While we hear many complaints of the crowded condition of the highways, especially in thickly settled sections of the country, there is no present indication that that has had any effect on the minds of those using the private automobile. On the other hand, the various good-road programs, the enormous increase in the mileage of hard roads, the incentive in all sections of the country and in all territories to improve the condition of the byways as well as the highways, are constantly opening new fields for rapid and comfortable traveling by automobile.

While the evidence of the great importance of the private automobile as a competitor is overwhelming and generally recognized, that with reference to the motor-bus is not so clear. By some people it is looked upon as a real danger to short-haul railroad business; it is belittled by others. It has not been a factor in the situation long enough, nor are the statistics showing the effect of its competition definite enough, to indicate its present or potential strength. Statements which are more or less commonly heard are the following: (1) That the private automobile, and not the bus, is the real competitor; (2) That busses are operated on rates under which they cannot live; (3) That bus competition is possible only because the roadway is built and maintained by the public; (4) That the bus is a temporary competitor because bus companies are for the most part financially irresponsible; (5) That the bus cannot compete with the railroad on a comparable, economic basis.

These statements are worthy of analysis because they are sometimes made by those whose business it is to watch closely the changes in traffic. As previously indicated, no one will question that the private automobile is the chief reason for the great decline in the volume of business. This statement itself, however, provides no basis for the assumption that the motor-bus is not a factor. In order to determine the significance of motor-bus competition, a survey has been made of the extent of this competition in the southern New England states, where the bus has been an important factor for some years, and in certain typical midwestern states. In addition, information has been secured from a number of individual railroads both in New England and in the Central West.

## *II. Extent of Motor-Bus Competition*

In presenting the results of this survey, it should be explained that it is impossible to present absolutely accurate figures showing the extent of bus competition with railroads. In the first place, the situation changes almost from day to day. Bus lines go out of business and others take their places. Routes are changed so that a line which may have been a competitor today ceases to be so tomorrow. Information secured from state commissions, showing the bus line companies which are operating under the law, may not in some cases include those lines which have not secured the necessary certificate (called for by the law), but which will continue to operate until they are hailed before the commission. Even more important are the differences in judgment as to what constitutes a competitive bus line. There are many lines with one terminus at a station on the main line of a railroad and the other on a branch line, the route being across country. This bus line would doubtless be a competitor in the handling of passengers between the two termini, but would not be a competitor in the handling of the local way business. In deciding whether a bus line was competitive or not, the writer has usually not considered a line of the character mentioned above as a competitor but has included in the main only lines which, for the greater part of their length, parallel rail lines. There is no doubt that on the basis of the same information other students might arrive at a different conclusion as to the exact mileage paralleled by bus routes. The exact number of miles, however, is not of particular significance, but rather the extent to which rail lines on the whole are being subjected to this kind of com-

petition. One further feature should be mentioned. In many places there are two lines of railroad running between the same points and competing with each other. In such cases, the mileage has been counted but once. The figures given below, therefore, are too low rather than too high.

### *Massachusetts and Rhode Island*

The survey covering the states of Massachusetts and Rhode Island has combined the results of the two states because of the fact that a very large portion of bus traffic is interstate in character. The survey shows that 1,175 miles of railroad in the two states are paralleled by bus routes. Of this, somewhat more than one-half is mileage of the New York, New Haven and Hartford Railroad, the balance being on the Boston and Maine and the Boston and Albany railroads. This mileage constitutes slightly more than 50% of the total mileage of railroad lines in these two states. Further analysis shows that bus routes parallel a much greater proportion of the main lines than of the side lines. Several bus lines parallel the main line of the New Haven Railroad from Boston to Providence. Likewise the main line from Boston to Fall River and New Bedford, the main line of the Boston and Albany from Boston through Pittsfield and the main lines of the Boston and Maine radiating out of Boston to Portland, Haverhill, Concord, Fitchburg, and Clinton are all paralleled by bus routes to the points named.

### *Connecticut*

In Connecticut, out of a total of approximately 1,000 miles of railroad, slightly over 500 are paralleled by bus routes. Here, again, the routes of heaviest rail traffic are almost completely paralleled. The main lines between New Haven and New York and between New Haven and Springfield are paralleled for their entire length, although these are interstate lines and are not supposed to handle local intrastate traffic. The main lines from New Haven to New London and from New London to Stonington are also paralleled, as are various portions of the secondary lines radiating from South Norwalk, Bridgeport, Waterbury, Hartford, New London, and so on.

The situation in southern New England is extremely interesting because that section of the country has more cities of substantial size for its area than any other section. It is, therefore, particularly susceptible to the growth of competition of this kind, and it is not surprising that such competition has developed there to a greater extent than in any other section of the country, with the possible exception of the territory in and around Indianapolis and certain sections on the Pacific Coast. Furthermore, the situation is particularly difficult to control since a large portion of the competition is interstate traffic. The bus lines have been established frequently with that in mind, thus making it possible for them to be free from the regulation of the state commissions.[1] In spite of laws in all of these states, it is doubtful if the situation can be controlled and wasteful competition eliminated until some national action is taken, under which interstate bus traffic is given the same regulation as intrastate traffic.

[1] See, however, the recent decision of the Massachusetts Supreme Court in *Barrows et al.* v. *Farnum's Stage Lines, Inc.*, Opinion January 5, 1926, reprinted in *Aera*, Vol. XV, pp. 34-37, February, 1926.

### *Indiana*

Probably the motor-bus has received a greater impetus in Indiana than in any of the middle-western states. Here, again, there are several large and thriving communities with the city of Indianapolis as a focusing point for almost all of the traffic in the state. As of October 1, 1925, there were some 270 bus routes in Indiana of which about 60 were within the limits of the various cities or within that portion of the greater Chicago area within the state of Indiana. About 60% of the remaining routes are in direct competition with steam-railroad lines. The mileage of steam-railroad lines paralleled by these routes is just under 3,000. Almost every railroad which enters this state is subject to this competition. The mileage of the various railroad lines paralleled directly indicates the truth of this statement (Table II). It should be kept in mind, however, that this is not the total mileage of an individual railroad, since in several cases more than one railroad runs between two given points.

The map of the railroads in the state of Indiana shows a great mass of lines centering in Indianapolis and practically every one of these lines is paralleled for varying distances by bus routes. When it is appreciated that many of these lines are also paralleled by interurban and electric lines, the dilution of the revenues of all concerned through this amount of competition is readily apparent. Such an intensity of competition in itself helps to explain the financial condition in which many bus companies in Indiana now find themselves.

TABLE II. INDIANA RAILROAD MILEAGE PARALLELED BY BUS ROUTES

| Railroads | Miles |
|---|---|
| Pennsylvania | 933 |
| C. C. C. and St. L. | 541 |
| C. I. and L. | 289 |
| N. Y. C. and St. L. | 267 |
| Chicago and Eastern Illinois | 165 |
| New York Central | 139 |
| Wabash | 108 |
| Chesapeake and Ohio | 97 |
| Southern Railway | 93 |
| C. M. and St. Paul | 88 |
| Baltimore and Ohio | 86 |
| Illinois Central | 83 |
| Erie | 46 |
| Pere Marquette | 23 |
| L. and N. | 19 |
| Total | 2,977 |

### *Michigan*

As of the end of November, 1925, passenger permits had been issued to 164 bus lines in Michigan. Of these 78 were entirely competitive with railroad lines and 11 partially so, there being 75 which were not considered competitive. The total miles of railroad in Michigan paralleled by bus lines, counting but once the miles of line between points served by more than one carrier, were 2,680, or 31% of the total railroad mileage in the state. As in the case of Indiana, substantially every railroad with any mileage in Michigan is affected. The greatest amount of mileage affected is on four railroads, the Pere Marquette, with just under 1,000 miles; Michigan Central, 577; Canadian National, 306; New York Central, 204.

### *Iowa*

As of October, 1925, 70 bus routes were served in Iowa, of which 44 were entirely competitive and 6 partially so. The parallel railroad lines totaled 1,831, or 19% of the total mileage in this state. The railroads especially affected were the Rock Island, with 724 miles subject to bus competition; the

Northwestern, with 334; the Minnesota and St. Louis, with 265; and the St. Paul, with 293. It can be said that the extent of competition in Iowa is considerably less than in the other two midwestern states mentioned. This is probably due to the greater proportion of rural area in the state and the smaller number of large cities. It also is possibly due in part to the apparent desire of the commission to control strictly the amount of permissible bus operation.

### *Wisconsin*

In Wisconsin 62 bus lines were operated as of December, 1925, of which 50 were direct competitors of steam railroads. All told, 1,850 miles of railroad were matched by bus routes, which is 25% of the total railroad mileage in the state. The Chicago and Northwestern is particularly affected in this state. Its paralleled mileage is substantially more than half of the total mileage, 1,064 out of 1,850. The extent of the competition in Wisconsin is also indicated by the fact that some 300 busses are listed as bonded carriers.

Specific information could not be obtained for several of the midwestern states, notably Illinois and Minnesota, because a complete official survey has not been made. In Ohio it was not possible to obtain complete data, but it was found that approximately 500 motor-busses were operated and "serving practically every community in the state." As an example, the main line of the New York, Chicago and St. Louis from Ashtabula to Lima, a distance of about 200 miles, is paralleled by bus routes. Apparently the situation in Ohio as to the extent of bus operation is similar to that in Indiana and Michigan.

### *Bus Competition of Individual Railroads*

In addition to the information showing the extent of competition by individual states, it is of interest to note the situation with respect to individual railroads. Statistics have been compiled covering the three important New England roads and four lines in central-western territory (Table III).

Table III indicates in a general way the same situation that was shown by the data for individual states. The extent of competition in New England is greater than in the central-western territory though the extent of competition in Indiana is not far behind that in southern New England.

An analysis of the railroads in Illinois, especially the Illinois Central, indicates a marked difference between the situation in that state and the neighboring state of Indiana. Although official figures are not available for the entire state of Illinois, there is no doubt that the extent of competition is very much less than in Indiana, Ohio, and Michigan and probably no more than, if as great as, in the state of Wisconsin. That this is due primarily to the difference in the general characteristics of the state cannot be disputed. On the

TABLE III. BUS COMPETITION OF INDIVIDUAL RAILROADS

| Railroad | Miles of Road Operated | Lines Paralleled by Bus Routes |
|---|---|---|
| Boston and Maine | 2,470* | 854 |
| New York, New Haven and Hartford | 1,958 | 1,292 |
| Boston and Albany | 394 | 200 |
| C. C. C. and St. L. | 2,792 | 1,467 |
| Chicago and Northwestern | 8,463 | 2,495 |
| Chicago, Indianapolis and Louisville | 322 | 255 |
| Chicago Great Western | 1,496 | 488 |

*Including miles of controlled and affiliated lines.

other hand, the remarkable increase in the mileage of paved roads in Illinois where formerly the roads were the despair of the population would seem to invite the operation of bus lines for fairly long distances. Possibly the program of increasing the mileage of hard roads has been of such a recent origin that there has not been sufficient opportunity for the business to develop. A more likely solution, however, is the attitude of the Illinois Commission which, from the language of some of its decisions, appears to have taken a more conservative attitude toward encouraging bus competition than have the commissions of several of the other states.

It is an interesting fact that although the main lines of a large majority of the railroads in Ohio, Indiana, and Michigan, as well as the main lines of the railroads in New England, appear to be paralleled by bus routes, only 14 miles of the entire main line of the Illinois Central Railroad between Chicago and Centralia, a distance of 250 miles, are paralleled by bus routes. The situation is somewhat different, however, in the territory south of Centralia, Illinois, and also in the territory around St. Louis. Between 20% and 25% of the total mileage of the Illinois Central Railroad within the state of Illinois appears to be paralleled by bus routes.

### *Quantity of Railroad Service*

The mere fact that competition exists along a certain number of miles of railroads or a certain proportion of the miles of railroad within a state is not of itself an adequate indication of the extent of bus competition. It is commonly said that bus competition is possible only where service is poor or where the rates fixed by the bus companies are very much lower than the railroad rates. An analysis, therefore, has been made of the railroad service in the three New England states and the four midwestern states where complete and official information was available. The railroad time-tables as shown in the *Official Guide* for October, 1925, have been analyzed and the number of trains a day between the termini of the bus routes, which parallel the rail routes, have been drawn off. Of course, this does not furnish a complete picture of the amount of service provided. In some cases the number of trains per day indicates the amount of service between the termini of the bus routes. In other cases it shows the amount of service between the termini and certain intermediate points, while in still other cases substantially all of the towns touched by the bus routes have that amount of service supplied by rail lines. In spite of this deficiency in the information, however, the data compiled (Table IV)

TABLE IV. AMOUNT OF TRAIN SERVICE ON LINES SUBJECT TO BUS COMPETITION

| States | 0-2 Trains per Day Miles | 3-6 Trains per Day Miles | 7-10 Trains per Day Miles | Over 10 Trains per Day Miles | Total |
|---|---|---|---|---|---|
| Massachusetts and Rhode Island | 54 | 143 | 184 | 794 | 1,175 |
| Connecticut | 77 | 159 | 13 | 270 | 519 |
| Michigan | 974 | 731 | 728 | 247 | 2,680 |
| Indiana | 747 | 1,471 | 392 | 367 | 2,977 |
| Iowa | 308 | 1,166 | 216 | 141 | 1,831 |
| Wisconsin | 322 | 1,305 | 84 | 139 | 1,850 |

show some extremely interesting facts and conclusively show what has been, to a certain extent, indicated by the figures of miles paralleled by bus routes—namely, that the railroad lines of heavy traffic, which have good service, are in many cases subjected to more competition than are the lines which have poor service.

In the first place, Table IV shows that in all the states busses compete on all lines without reference to the amount of rail service. It is true that in New England the proportion of paralleled lines on which the rail service is heavy is much higher than in the West. This, however, is an indication of the amount of rail service provided on all lines rather than on the lines paralleled by bus routes. Passenger traffic on the New England roads is extremely heavy, the passenger density of the New Haven being greater than that on any railroad of equal size in the country. In both New England and in the West the character and amount of service on lines paralleled by bus routes is a cross-section of the character and amount of service provided on all railroad lines in those states. In Michigan, where much more than half of the mileage paralleled by bus routes affects railway lines having six trains a day or less, the balance of the mileage paralleled by bus routes includes almost all of the mileage in that state on which there is heavy passenger service. For example, on the Pere Marquette almost all of the heavy main lines are paralleled. The same is true of the Michigan Central. In Indiana the same thing is true in slightly less degree in the cases of the Pennsylvania and the Big Four. As has been previously shown, the important main lines in New England are likewise paralleled. The significant fact brought out by Table IV is that bus competition has established and maintained itself in competition with railroad lines which provide excellent service as well as with those on which service is light.

### *Competition in Rates*

Another most important consideration is whether bus competition is possible only where the rates provided are much lower than the rail rates. The information available on this subject is not as adequate as would be desired. The commissions have no data indicating the bus revenue per passenger-mile. In some states the tariffs of the bus companies must be filed, but the commissions have made no summary of these tariffs, except possibly for their own information. Nevertheless, the data available are sufficient to indicate rather clearly to what extent bus competition thrives on account of low rates.

In the state of Connecticut, a compilation of the miles and fares of all bus routes shows in substantially every instance an average fare higher than the fare on the railroad. Nor are there great differences between the average rates per mile on the short and longer routes. For example, the fare for a 6-mile trip is 25 cents, while the fare for a 44½-mile trip is $2 and for a 38-mile trip, $1.71. An analysis of the individual mileages and fares indicates almost without exception an average bus fare of 4 cents per mile or higher without respect to the mileage. An arithmetical average of the total miles and total fares shows an average rate per mile of 4.45 cents for the independently operated bus lines. In addition to the lines operated by independent companies there are a number of routes operated by the Connecticut Company (an urban and interurban company). With few exceptions, these lines are not in com-

petition with rail lines. The average fare per mile on these lines is 3.78 cents. It will be noted that in all cases the average rate of fare is in excess of the 3.6 cents applying to the local steam railroad traffic. Information as complete as that for Connecticut is not available for other New England states. A study of the individual fares and miles of route, however, shows that on the lines paralleling the Boston and Maine and the New Haven, the average rate for the bus lines is at least as high as that on the steam railway lines. In many cases the rate is the same. It is a significant fact, too, that between Fall River and Providence, where the service provided by the railroad is unexcelled and where, in spite of this fact, bus competition has made serious inroads, the rates of fare between Providence and Fall River are identical on the bus and rail lines.

In the central-western states the situation as to fares differs materially in different sections. In Indiana, the bus rates have been fixed at a low point. Generally speaking, the rates on the lines out of Indianapolis have been about 2 cents a mile. Apparently in other sections of the state the fares are somewhat higher. The average fare of the lines which are in competition with the C. I. and W. has been just under 3 cents a mile.

In connection with the comparatively low bus fares in Indianapolis, one should note that in Indiana the bus companies compete not only with steam railroads, but also, to a very large extent, with interurban traction lines, a situation not found in New England nor in most of the other states under review. It is also significant that these bus lines in Indiana are now, to a large extent, in financial difficulties, with the largest of them in receivership.

In Iowa no data have been compiled to show the average rates, but an analysis of the schedules filed by the bus companies indicates that the rates run from 2.4 cents to 6.2 cents, with an average of about 4.3 cents per mile. Here, again, it is noticeable that the average bus rates are higher than the rail rates and that competition continues on that basis. In Wisconsin no official information was available, but such data as could be obtained indicate that 4 cents a mile is the maximum on runs of 25 miles or longer and where busses compete directly with steam or electric railways, the rates are somewhat less than the steam railway rates. This is confirmed by a study made by the Passenger Traffic Department of the Chicago and Northwestern Railroad, which reveals that the bus rates in Wisconsin are about 7% less than the rail rates between the same points.

### *Decrease of Ticket Sales on Railroads*

Here, again, it is clear that while there are important examples of bus competition succeeding by reason of lower rates, equally important examples can be found of bus lines succeeding with rates which are equal to or in excess of rail rates. We must look, therefore, not solely to the amount of service provided by the steam railroad carriers or

TABLE V. DECREASE OF TICKET SALES ON NEW HAVEN RAILROAD AS RESULT OF BUS COMPETITION

| Termini | Miles | Total R. R. Trains per Day | Decrease in Ticket Sales |
|---|---|---|---|
| Providence—Fall River | 19 | 65 | 63% |
| No. Attleboro—Providence | 12 | 2 | 62 |
| Attleboro—Providence | 12 | 26 | 41 |
| Providence—New Bedford | 43 | 7 | 35 |
| Providence—Worcester | 43 | 16 | 31 |
| Hartford—Springfield | 26 | 35 | 21 |
| Hartford—Providence | 98 | 11 | 17 |
| Boston—Providence | 44 | 47 | 7 |

to the relative rates, but to all factors governing the competition between the new and old systems of transport. The truth of this statement is shown in Table V, giving the result of an analysis of ticket sales between the termini of routes paralleled by bus lines. A comparison was made of the sales for several months before and after the opening of bus routes. The differences are not due in any degree to the private automobile, since there were no great differences in the opportunity for such travel in the periods used.

Table V includes routes of varying mileage and varying amounts of railroad service. The small decrease in the Boston-Providence business is undoubtedly due to the better time made by trains on account of the large proportion of express service. It is of interest to note that the loss of business to the railroad was almost exactly the same for the route on which the railroad service was the best and the worst. Apparently rate differences had little to do with the degree of loss since in all these cases the railroad and bus fares were approximately the same.

### *II. Comparative Operating Costs of Rail and Bus Service*

The study of various transport systems from the days of the first well-constructed road through the eras of the turnpike, the canal, and the steam railroad has clearly indicated the basis for the substitution of one system of transport by another. In each case the superiority of the successful form of transport has been either in one or both of two factors—cost and service. By service is meant not only the frequency of opportunity for transport between points, but the entire question of the convenience to the traveling or shipping public. If bus competition is to be successful or if bus operation is to be a significant part of the field of passenger transport, it must justify itself through one or both of these basic measuring sticks.

It is a very simple matter to demonstrate that within certain limits bus operation is much cheaper than steam. The cost of operating a local passenger train varies from $1 to $1.25 per train-mile. This includes the cost of locomotive maintenance, the wages of the train and engine crews, the cost of fuel and other locomotive supplies, and the cost of caring for the engine and cars at the termini. If the maintenance of the passenger cars is included, an additional expense of from 8 cents to 12 cents per mile should be added.

The cost of operating a highway bus, including the same elements of expense, is about 25 cents a mile. Even when the factor of depreciation is added (which is not included in the expenses for local steam train operation), the cost on the whole will not exceed 30 cents per mile. Figures covering a substantial period of time, compiled by a well-established company with adequate charges for maintenance and for depreciation, show a cost of 27 cents per mile.

The capacity of the average local or branch-line steam train varies considerably, but will certainly exceed 100 passengers per train. Assuming that the capacity is fully utilized, these out-of-pocket expenses will not exceed 1 cent per passenger per mile. The average capacity of most of the larger busses which have been in operation is between 20 and 30 passengers, so that the average cost per seat-mile is slightly in excess of 1 cent per mile. It is quite apparent that if the local or branch-line trains of the railroad were fully utilized,

the railroads on the basis of out-of-pocket expenses and without considering other charges, such as maintenance of way, taxes, and so forth, would be on an equal basis with the busses. As a matter of fact, however, branch-line and local trains are almost never utilized to capacity, and in a substantial number of cases the passengers on branch-line trains could be accommodated in a single bus.

This fact is clearly indicated, if in no other way, by statistics of the average number of passengers per passenger train-mile for all Class I railroads in the United States. For several years this average has been approximately 65 passengers per train-mile. When we consider the very heavy loading of through trains and commuter trains, it is a fair assumption that the average number of passengers on many local and branch-line trains is less than 30. Whatever the facts may be as to a majority of local or branch-line trains, it is well recognized, as shown in many rate proceedings, that on innumerable local trains the average number of passengers could be accommodated in one of the larger busses.

We have, therefore, as a basis of comparison not the average cost per seat-mile, but the average cost per mile of passengers actually riding. In every case where the passengers could be accommodated easily by a bus, the substitution would effect a saving in operating expense of close to 75%. These calculations are significant answers to the statements of many people, that bus competition is made possible because a relatively free right of way is provided, while the railroads have to maintain their own right of way and in addition pay taxes, which help support the right of way of their competitors. Although argument as to the injustice of this type of competition is undoubtedly sound, it in no way proves that if the bus companies were properly taxed to cover their share of highway expenses, they would not be able to compete successfully with the steam railroads. On the basis of out-of-pocket expenses alone, the busses will be able to compete with local and branch-line trains except where these trains carry a large number of passengers.

### *The Effect of Right-of-Way Expenses*

The question of the effect of a fair tax upon the cost of bus operation is so broad that it should be the subject of a separate paper. Much light on this question has already been thrown by the illuminating article appearing in the October JOURNAL.[2] Without reference to the amount of taxes actually paid by commercial vehicles and looking at the situation solely from the proportion of railroad costs made up of corresponding expenses and fixed charges, certain computations are possible which throw an interesting light on this controversial question.

In 1924 the total operating expense of Class I steam railroads chargeable to passenger service was $1,188,674,000. Expenses of maintenance of way by primary accounts and subdivided between freight and passenger services are not available at this time; nevertheless it is possible to arrive at approximate figures as to the maintenance of the right of way and track chargeable to passenger service. The total expenses, for both freight and passenger services, of roadway maintenance, ties, rails, track materials, track laying and surfacing, crossings, and like items, but excluding

[2] McDonald, T. H., "Commercial Vehicles on Free Highways," THE JOURNAL OF LAND & PUBLIC UTILITY ECONOMICS, October, 1925, Vol. I, pp. 385-397.

stations, engine-houses, shops, and corresponding items, were about $600,000,000 for the year 1924. The basis used by the Interstate Commerce Commission in subdividing the expenses of maintenance of track and allied items between passenger and freight services is the fuel consumed in the two classes of service. The fuel consumed in the passenger service in the year 1924 was about 24% of the total. Applying this percentage to the total freight and passenger expenses of the maintenance of track, way, and so forth, we have a total of approximately $144,000,000 chargeable to passenger service. In other words, this figure represents the approximate cost to the railroads for the maintenance of their own tracks and, furthermore, is a cost to which the busses are not subject when they operate on the highways. It will be noted that this amount is about 12% of the total expenses chargeable to passenger service.

The railroads, however, not only have to maintain their own right of way, but must pay the expenses of owning it. It is impossible to determine with any degree of exactness the fixed charges upon the value of railroad rights of way. The investment in road and equipment for the railroads as a whole is not subdivided even as between investment in road and investment in equipment. The total investment in road and equipment for Class I railroads as of 1924, exclusive of materials and supplies, was about $21,500,000,000. Figures which have been compiled to show the proportion of the investment in equipment to the total indicate that the equipment investment is about 20% of the total. It is reasonable to estimate that the value in terminals, in shops, engine-houses, stations, office buildings, telephone lines, and so forth, would represent another 30%, leaving one-half of the investment in road and equipment representing the investment in right of way, or $10,750,000,000. Assuming that the railroads earn 5¾% on this sum, the amount of return would be $618,000,000. But only 24% of this ($148,000,000) is applicable to passenger service. This amount, which approximately equals expenditures for maintenance of way, track, and so forth, represents the return on right-of-way investment value chargeable to passenger service.

The taxes paid by the Class I railroads in 1924 amounted to approximately $340,000,000. Much of this, of course, is applicable to other values than the values in the right of way. If we assume that one-half of taxes, as in the case of road and equipment, is applicable to the right of way, we have $170,000,000, and 24% of this sum would be $40,800,000, the tax element in passenger service right-of-way investment cost. On the basis of these very liberal estimates, we have a total of $333,000,000, or approximately one-third of the operating expenses, exclusive of those chargeable to the maintenance of right of way.

If the busses were forced to pay taxes which equaled the cost of their proportionate use of the highways, we do not know what increase there would be in their operating costs. It is doubtful if the increase would be as much as one-third. Railroads must pay the entire charges for their right of way; the bus need pay but a proportion. If we add to the bus cost 50%, instead of the 33 1/3% indicated on the rail lines for corresponding charges, the busses would still be at an advantage from the standpoint of cost in every case where the number of passengers on railroad branch lines could be accommodated in

a large highway bus. Even where it would be necessary to run two busses in place of one railroad passenger train, the out-of-pocket cost per mile would be 50 cents to 75 cents as compared with $1 to $1.25 for the local steam train. If we add to the bus cost 50% for the use of the highway, the operating costs, taxes, and fixed charges of the busses would still be substantially less than the corresponding steam-railroad charges. These facts are given not to belittle the arguments advanced in favor of the busses paying an equitable tax, but rather to indicate that the payment of such a tax by the bus companies would not be likely to eliminate them as competitors of the railroads in handling local and branch-line traffic. It would appear, therefore, that from the standpoint of one economic basis, namely cost, the busses are in a fair way to supplant railroad service in the handling of local and branch-line passengers except where such local and branch-line service carries a large number of passengers per train-mile.

### *Competition in Service*

What is the situation with respect to service? The factors of importance in service are, first, frequency of service; second, dependability; third, speed; fourth, comfort; and fifth, convenience of service. From the standpoint of frequency, no one will doubt that the busses show to an advantage. In most cases the number of trips provided by the busses is in excess of the trips provided by the steam railroads, in several cases the service being two or three times as much.

From the standpoint of reliability the steam railroads have a decided superiority. To be sure, local and branch-line trains may not show the same "on time" performance as other trains, but I believe that people generally will accept the statement that on the whole the reliability of steam service at the present time is not subject to serious criticism. In the case of the bus companies, there are wide differences in the results. Companies which have been long in the field, and which are well established and well patronized by the public, have realized that they must provide reliable service if they are to succeed. Other lines that are not so well established and not operated by responsible people do not give such a reliable service. One complaint is that frequently the bus lines operate only in the summer months and either go out of business entirely or move to other parts of the country during the winter. Although this may have been true of some earlier companies, the lines which have been well organized fully realize the necessity of providing an all-year service. Some of these companies have bought snow-removing equipment in order to assist the county and city highway departments in clearing the highways. Probably in the winter period the bus lines will find it difficult to equal the reliability of steam lines. To that extent the competition will be less severe. Nevertheless, the steady tendency of the established and well-organized bus companies is to improve the reliability of their service; and if they succeed in approximating the reliability of rail service, the frequency of their service will tend to offset its weakness from the standpoint of reliability.

As to the speed of service, the situation differs with the number of local stops by steam trains. Short runs of 20 to 40 miles are usually local in character, with frequent stops. In such cases busses can make the same time. Runs of 40 miles or more, with few stops, can

be made in quicker time by railroad. This is the situation between Providence and Boston, as previously shown. Between Providence and Worcester, an equal distance, bus competition is more severe because of the local character of the railroad trains. The differences in speed by bus and rail are therefore dependent on the conditions over each route.

As to the comfort of riding, the present large highway bus traveling on paved roads compares favorably with the average local or branch-line passenger train. The railroads, of necessity, must use their poor equipment on these trains. It would not be an economical proposition for them to do otherwise. The equipment on such trains, though in many respects undesirable from the standpoint of the passenger, is entirely safe and undoubtedly has an average life of several years for use in such service. To scrap such cars would be a waste of capital. The railroads, therefore, from the standpoint of economical management, cannot be unduly criticized for using this equipment for local service. On the other hand, the passenger cannot be blamed if he chooses to ride in a vehicle which is new and which, on paved roads, is comfortable. The situation is somewhat different where the railroads provide gas cars or gas-electric cars, the newest types of which compare favorably with busses in comfort.

The bus has the greatest advantage in the fifth aspect of service—convenience. The disadvantage suffered by the railroad, especially in the case of short runs, is the length of time spent by the passenger between his home or place of business and the railroad station at the ends of his trip. In many instances, railroad stations are at some distance from the business section and in the great majority of cases are distant from the residential sections. On the other hand, most of the bus lines have their termini in the heart of the business district and are much more convenient to the residential district. Since their routes pass along the main highway, they are likely to be accessible to many people who are somewhat distant from the railroad. Analysis of the decisions of various state commissions reveals instances where the certificate has been granted primarily because of the convenience of bus service to these more remote districts. Moreover, the busses stop at points between the centers of cities and towns, while railroads, of course, serve passengers only at fixed stations. From the standpoint of service, therefore, the bus appears to have an advantage over the local or branch-line passenger train.

It appears to the writer that the coming of the private automobile has educated the public to a service which it never before experienced. This is the service which has taken much of the business away from the railroad and which will continue to deprive the railroad of a substantial amount of business. As previously stated, it is extremely doubtful if the railroads, by any service which they can economically provide, can tempt passengers away from the private automobile. The public, once accustomed to this type of service, is not likely to desert it for any other means of transport except one which will approximate such service. The one possible exception is the bus.

### *The Place of Bus Service in a Transport System*

To establish the exact place of the bus in the transport system is not within the scope of this article. Certainly

there is an economic basis for its taking the place of steam service on local runs. In the writer's opinion, it is unlikely that the bus will supplant steam railroad transport on runs in excess of 100 miles where the amount of travel is appreciable and where the amount and quality of steam service is approximately adequate. The cost of through steam trains is not in excess of that of local trains. These trains have an average of from 5 to 10 cars per train. The average number of passengers per train is far greater and the average cost per passenger for out-of-pocket expenses much less than the corresponding units for busses. There is, of course, a middle ground of limited service and light traffic where the bus has an opportunity even on the longer runs. On the whole, however, the steam railroads are not likely to lose much of this business.

The Indiana bus situation is very interesting in its bearing upon successful bus operation. The amount of bus competition in that state is probably greater than in any other similar midwestern area. In addition, the interurban traction lines are more highly organized than elsewhere. As a result, we find running out of Indianapolis, three complete systems of transport: steam, electric, and highway. In no other section of the Middle West, probably in no other section of the United States, is there such a situation. The bus companies apparently believed it necessary to establish very low rates in order to compete, the rate being about 2 cents a mile out of Indianapolis. Furthermore, in but one or two instances have the bus companies asked for higher rates. The severity of competition and the obvious overdevelopment of transport facilities in this section naturally resulted in the eventual collapse of the weakest system, the bus companies. It is significant that the interurban lines seem to be interested in making use of the bus for short local traffic.

This situation in no way indicates the complete failure of the bus in its field. The competition between bus and trolley is more difficult for the former, since the costs of interurban electric service are lower than the steam roads can afford. Although the collapse of the independent bus companies in Indiana significantly indicates the limitations of the bus, it should not blind the managements of traction or railroad systems to the effective use that can be made of the bus in its proper field.

### *IV. Attitude of Public Officials toward Bus Competition*

In the study of bus competition, it is important to determine the general attitude of the public as shown by legislation and the decisions of commissions. If the bus is justified by general economic laws, it will eventually prove itself and take its proper place in the scheme of transport. On the other hand, its progress toward this place may be much retarded or expedited by the attitude of the legislators and of the state commissions. A clear picture naturally cannot be obtained from the sum total of the laws and commissions' decisions. The policies differ widely, not only in the intent of the laws, but in the spirit in which they are administered. In most states where laws have been passed, it is provided that a certificate of public convenience and necessity must be obtained by the bus company. Most of the laws require the deposit of a sufficient bond to protect the prospective passengers, and some require in addition that the bus company establish its financial standing.

In several important instances, the

mere existence of the operation of the bus for a specified period prior to the passage of the law justified the issuance of the certificate of convenience and necessity. This automatically provided for the existence of the bus routes regardless of the character of the railroad service paralleled by these routes.

In Michigan, by an important decision of the Michigan Supreme Court, the certificate of convenience and necessity was to be given by the commission with reference solely to the amount of existing bus service and without any reference to the service provided by other agencies. In a similar case in Ohio, however, the commission decided that the Ohio law could not be interpreted in the same way.

The decisions of the state commissions cannot be crystallized. In most cases, the commissions have stated that a certificate of convenience and necessity should not be given when the existing service is adequate. What constitutes adequate service is a question on which opinions differ widely. There is a general acceptance, however, of one principle; namely, that the bus has won for itself a definite place in the transport system of the country. The Colorado Commission *in re Colorado Motor Way, Incorporated,* said: "Some of the counsel for respondents contend in their briefs that the applicant must establish the right to a certificate of convenience and necessity beyond a reasonable doubt. This is absurd. No such rule has been laid down by any utility commission nor promulgated by any court. It would seem to be time for railroad companies to understand that the state does not guarantee a satisfactory return upon utility investments, and further that the automobile is here to stay and that it cannot be eliminated by any utility commission nor by any court or legislature; that it is a great industrial fact and must be met and treated as such. The law will not compel a person to ride on a railroad train nor forbid him to ride in an automobile if he so desires. Such a policy is inconsistent with the American notion of human liberty."[3]

Even a dissenting opinion in the same case clearly recognized the place to be occupied by the bus. The dissent referred not to the legitimate sphere of the bus, but rather to the specific application of the principle in the particular case. The same opinion is especially interesting because it establishes a principle which undoubtedly will be widely accepted.

"It would be ill advised to say that motor-trucks have no place in this day and age. They already occupy a large and ever-increasing field, and one might just as well attempt to sweep back the tides of the ocean with a broom as to prevent their operation within useful and proper lines. However, this does not mean that they may not, without proper control, become a menace to the very people they seek to serve. . . .It is possible the larger and more prosperous roads of Colorado can withstand this invasion, but this subtraction from some of our weaker lines, already sorely financially depressed, may so seriously handicap them as to compel them to cease operation. The railroads are absolutely necessary to our civilization. If it were not for them, the wheat, corn, potatoes, fruits, hay, lumber, coal, live stock, sugar beets, and so forth, could not be moved to and from the eastern or local markets."[4]

This idea of evolution also appears in the opinion of the Michigan Supreme Court, referred to previously: "This is an age of evolution in the transporta-

[3] P. U. R. 1924 A, 56, at 61-62.

[4] *Ibid.*, at 66.

tion business. Steam railroad service greatly reduced the earnings of the vessels carrying passengers and freight, and put the stage coach out of business. Electric cars have much affected the business of steam roads between certain points. The use of motor vehicles will doubtless decrease the earnings of the electric roads. If it be desirable to clothe the commission with the power to prevent such competition by refusing to permit motor vehicles to operate, when the service rendered by the steam and electric roads is adequate to the needs and convenience of the public, we think the legislature should so provide in no uncertain language."[5]

In the important case of *re Aldrich*,[6] decided by the New York Public Service Commission in 1922, which discusses in an able manner the various questions surrounding bus competition, appears the following:

"This is a period of transition and to require those living at a distance from fixed railroad stations to journey to the stations and there await the arrival of trains, rather than to be allowed to take advantage of busses stopping at their front doors, merely because this would result in financial loss to the established carrier (the railroad), is not in keeping with ideas of progress. It is said that when the Erie Canal was projected, it was strenuously opposed by those who hauled freight by ox-teams from Albany westward, because the canal competition threatened to destroy their established business. When the first crude locomotive began to draw passenger and freight-cars, it undoubtedly meant ruinous competition to the lines of stage coaches which had accommodated the public since highways were first laid out. But in each of these cases the competition of the established carrier had to yield to a more adequate and convenient method of transportation."

Again in the case of *re Kipp's Express and Van Company*,[7] the Illinois Commission made this significant statement: "There is undoubtedly a field for motor transportation. The continued filing with this Commission of petitions for certificates of convenience and necessity by motor transportation companies to enter into competition with railroad companies plainly shows this Commission that the motor transportation service can no longer be ignored by steam railroad and electric interurban companies but that the economic question must now be answered whether railroads intend to fill the field served by their line with the most modern and most convenient service, adopting and coordinating motor transportation service in so far as it may assist in better serving the public within the field occupied by them. . . ."

### *Trend of Commission Decisions*

From these quotations from various decisions and from others which can be quoted, it is clear that state commissions as a whole have accepted the proposition that there is a definite field for the motor-bus and incidentally for the motor-truck. In scores of cases the efforts of railroad companies and interurban lines have failed to prevent the issuance of a certificate of public convenience, and the number of certificates continues to increase. This attitude of the commissions does not mean any want of sympathy for railroad lines or any failure to realize the necessity of safeguarding

[5] *Rapid Railway Company et al* v. *Michigan Public Utilities Commission*, 196 N. W. 518; P. U. R. 1924 B, 585; at 591.

[6] P. U. R 1923 A, 385, at 390.

[7] P. U. R. 1923 E, 249, at 256. See also *Re Frank P. Turner, et al*, P. U. R. 1922 B, 760.

the existing means of transport. It is significant, however, that in cases where the railroads provide service of 4 or 5 trains a day in each direction the commission has found that the public convenience required additional trains.

The commissions have distinctly refused to consider the various pleas made by the railroad companies as to the unfairness of competition, excessive use of the highways, financial condition of the railroad companies, and so forth. For example, the Colorado Commission *in re Preston* said: "Such matters as injury to the highways of the state by truck transportation lines and of the taxes paid by rail carriers, which proportionately are used for the construction and maintenance of highways, and all such kindred questions are matters for legislative action, by the enactment of such statute laws as will invest the Commission with authority to, in the proper case, give such matters due consideration."[8]

And again in the case of *re Aldrich,* previously quoted, the New York Commission said: "The railroads insist that motor bus competition is unfair, and for these reasons: The ordinary bus line is not required to give specified or scheduled service; in contradistinction to the railroads, operating on their own right of way, maintained at their own expense, the bus line operates over highways built and maintained by the general public. The ordinary bus skims the short-haul traffic and as a rule does not seek (at present) the longer hauls. They are independable at late or early hours and in inclement weather; when the highways are filled with snow or covered with ice they run with irregularity. The average motor bus is not heated in winter; and there is seldom any financial responsibility or redress in case of accident and injury to patrons. . . . . The foregoing facts have been presented many times to this Commission, but our authority is limited to deciding whether the proposed bus route is demanded by public convenience and necessity, and all these other matters are, therefore, immaterial in arriving at that decision."[9]

The Colorado Commission held that all evidence as to the taxes paid by railroads, especially for county and state road purposes, was immaterial and irrelevant in cases where certificates of public convenience and necessity were secured for the operation of vehicle service.

Another interesting angle from the standpoint of the state commissions was presented in the decision of the Arizona Commission *in re R. H. and J. S. Hatchell:* "The territory to be covered by this line, including California, is served by the Southern Pacific Company and in so far as through service is involved, by the Atchison, Topeka and Santa Fe, but since it is shown that the stage fares are less than the existing railroad fares, it would seem that ample justification exists for affirmative action by the Commission, even though it is conceded that the railroad service is convenient and satisfactory outside of the feature of rates."[10]

With reference to the financial condition of a company, the Colorado Commission, after commenting upon the railroad's showing that bus competition will cut passenger revenues 5%, said: "However this may be, it is not deemed to be of controlling materiality for the simple reason that, as this Commission and many other commissions have repeatedly held, a common carrier must afford reasonably adequate and efficient

[8] P. U. R. 1922 C, 844, at 848.
[9] P. U. R. 1923 A, at 390-391.
[10] P. U. R. 1923 D, 543, at 544.

service to the public to be protected in that service from competition. If a common carrier is unable to do so by reason of poverty, lack of business or any other reason, it is not cause for the public to be deprived of a reasonably adequate and efficient service. Hence, it follows that evidence of the financial condition of a railroad and its inability to earn even its operating expenses in and of itself furnishes no ground of defense or protest to the granting of a certificate of convenience and necessity. As has been decided by this Commission in several cases, the necessity need not be an absolute necessity, but only such a necessity as will be reasonably convenient to the service of the public."[11]

Likewise the Montana Commission said: "The fact that the Montana Western might lose its business, and might even go into bankruptcy as a consequence thereof, is not controlling. The question, under the statute, is whether the service rendered by the applicant is so far superior to the service now furnished in that territory, and so essential to the public convenience that the applicant should be allowed to operate notwithstanding the presence of the rail carrier."[12]

### *Meaning of Public Convenience—to the Commissions*

The question of what constitutes public convenience and necessity is one upon which commissions differ widely. In most cases, the commissions and courts have held that the general public rather than a mere section of it must be more conveniently served. There are, however, interesting examples of how this general principle may be interpreted. In one case the Vermont Commission said: "It is true that this service came into competition with the passenger service of the Central Vermont Railroad, but the bus service gives to the public additional opportunity for communication between these different towns, and especially affords opportunity for the farming communities through which the line extends, to make quick trips to the centers of business, and to send small packages and have errands performed for them, a service which the railroads are unable to extend."[13]

Needless to say, the railroads cannot hope to meet competition of this kind if the general interpretation of public convenience is to follow this reasoning. Probably the most fallacious method of determining whether the public convenience requires a competitor is illustrated in one or two cases in which the justification of the bus line is primarily its ability to sustain itself. The Montana Commission said: ". . . . The rehearing has developed the fact, not clearly shown heretofore, that the White Star Line has operated at a profit, and while its competitor, the Pioneer Line, presents figures showing an operating loss, we do not feel justified, in the presence of the public demands, in ruling against the carrier which shows its ability to sustain itself, merely to carry out a monopolistic policy."[14]

From the standpoint of the tactics of the case, the railroad companies might welcome such a line of reasoning, for they undoubtedly could show in case after case that local rail or bus trans-

[11] *Re W. E. Carver*, P. U. R. 1923 B, 242, at 247-248.

[12] *Re R. R. Broadhead*, P. U. R. 1924 E, 222, at 223-224.

[13] *Re Jewett and Son*, P. U. R. 1924 A, 155, at 156.

[14] *Re White Star Line*, P. U. R. 1924 B, 193, at 206.

port did not pay expenses. If this line of reasoning were accepted, there would be few motor-bus lines paralleling our main and branch railroad lines. However, the writer has not discovered any case in which a similar line of reasoning was adopted for the railroad lines.

A significant statement indicating the difficulties that the state commissions have in interpreting the new laws is that of the Iowa Commission: "Just what the promotion of public convenience means is not always easy to determine. It has been argued that we should be prophetic; that if we believe that in the undetermined future the present establishment of a bus or truck line will cripple the rail service now provided, then we should find that the said motor carrier would not promote the public convenience. However we may be convinced in our own minds that there is grave danger to continued service by rail when in competition with bus and truck service, it is manifestly not within our province to prognosticate and, upon that basis, hold against a proposed bus and truck line. It is not pleasant to contemplate the jeopardizing of service we have always believed to be necessary for the public convenience in order that a new carrier may be profitably employed. Especially so, when so many proposed bus or truck lines have no assurance of stability, no great financial backing, and but little invested capital. The law does not require any assurance of continued bus or truck operation."[15]

These decisions have been quoted to indicate the general acceptance of the motor-bus by the commissions and also their refusal to take into account certain arguments of the railroads, not because those arguments might not be sound in themselves, but because the commissions were powerless to consider them under the law. Other cases have been given to indicate that the convenience of the public may be considered on very broad lines and justify almost any motor-bus route. Nevertheless, there are many important decisions in which the commissions have clearly shown that a real convenience for the public as a whole must be shown before they will allow additional motor-bus routes. The case which is most often quoted is that of the Illinois Supreme Court.

> If the transportation facilities furnished by appellee are so inadequate as to subject the public to inconvenience and the operation of bus lines would eliminate that inconvenience, the order of the Commission was authorized. It is not the policy of the Public Utilities Act to promote competition between common carriers as a means of providing service to the public. The policy established by that act is that through regulation of an established carrier occupying a given field and protecting it from competition, it may be able to serve the public more efficiently and at a more reasonable rate than if other competing lines were authorized to serve the public in the same territory. The policy of the public utilities is that existing utilities shall receive in a fair measure a protection against ruinous competion. . . . Where one company can serve the public conveniently and efficiently, it has been found from experience that to authorize a competing company to serve the same territory ultimately results in requiring the public to pay more for transportation in order that both companies may receive a fair rate on the money invested and the cost of operation. . . . Whether the public convenience and necessity require the establishment of a new transportation facility is not determined by the number of individuals who may ask for it. The public must be concerned as distinguished from any number of individuals.[16]

In the same manner the Iowa Com-

[15] *Iowa Commission Docket* H-18, Nov. 23, 1923.

[16] *West Suburban Transit Company* v. *Chicago & West Towns Ry. Co.*, 309 Ill. 17.

mission said: "That a few people may declare that the proposed additional service would promote public convenience in view of the established fact that there are already facilities provided to carry passengers almost every hour of the day between two given points, would not be sufficient evidence to warrant the Board in holding that such additional proposed service would promote public convenience."[17]

Likewise the Colorado Commission said: "It is probably true that if a bus or electric car or a flying machine offered service every 15 minutes from morning until midnight of each day, some person or persons would find it convenient to use it, but such a service would hardly be termed a necessity of any character."[18]

It would appear that the Illinois Commission has adopted a broader standard of public convenience and necessity than many other commissions. This is clearly illustrated in the case of *re Ritter*.[19]

The Commission finds that in passing upon the question concerning the granting of a certificate of convenience and necessity to any motor bus company it is important and essential that the applicant shall have such financial ability, such operating experience, and such a reasonable guaranty of sufficient business as to warrant and guarantee to the public a successful operation of a permanent motor bus enterprise and there is not sufficient showing in this regard that such conditions exist with reference to the Ritter Motor Bus Company or that if a certificate of convenience and necessity were granted to it, as herein applied for over Route Number 1, that its financial condition, its experience in motor bus operations, or the general experience and ability of its officers in the operation of a motor bus enterprise is such that it become a permanent part of the transportation system of the state and particularly of the community through which it proposes to operate.

The Commission further finds that the temporary operation of any transportation system within a community, without possessing the certainty and security of developing into a permanent operation based upon the reasons just stated, is not a public convenience and necessity. In the absence of those elements and of such proof it does not possess the composite parts of a public convenience and necessity and that by reason thereof the application filed herein for a certificate of convenience and necessity over route designated as Route Number 1 should be denied.

Route Number 2 described in the application filed before the Commission as general docket number 12323 extends from the city of Bloomington on the west to the village of Colfax on the east and passes through several intermediate cities and villages and is close to, and nearly parallel with, the Illinois Central Railroad Company. . . . This, too, brings us to the question as to whether or not the public convenience and necessity demand or require the granting of a certificate of convenience and necessity over the route described as Route Number 2 and whether public convenience and necessity would be better served by the issuance of such a certificate.

The city of Bloomington, Illinois, and the village of Colfax, Illinois, and all intermediate cities and villages are at present served by the Illinois Central Railroad Company, which is the only public utility operating between those cities and engaged in the transportation of passengers and property for hire. As to the service rendered by the Illinois Central Railroad Company between the city of Bloomington, Illinois, and the village of Colfax, Illinois, the record is rather indefinite as to the exact amount of train service, but before disposing of that question we would suggest that if there is a sufficient demand for addition service in any of the cities lying along the lines of the Illinois Central Railroad Company between the city of Bloomington, Illinois, and the village of Colfax, Illinois, then such additional service can be obtained and added by order of the Illinois Commerce Commission following a proper showing before the Commission of such demand.

This case involved proposed bus lines

[17] *Re Tom R. Moore*, P. U. R. 1924 E, 587, at 592.

[18] P. U. R. 1924 E, 572.

[19] *Re W. H. Ritter*, P. U. R. 1923 B, 530, at 535-537. See also, P. U. R. 1923 A, 325; P. U. R. 1923 A, 615; P. U. R. 1923 C, 357.

competing in the one case with Chicago and Alton; second, C. C. C. and St. L.; and third, Illinois Central. The phraseology of the case as to all three routes was the same.

If one can derive any definite trend of thought or policy through the many decisions of various state commissions, it may be expressed somewhat as follows: the railroad (or the interurban line) is the established carrier in the field. As a common carrier it is subject to public regulation. Such regulation does not guarantee that carrier from other competition unless such a carrier provides service reasonable and satisfactory to the public. The unfairness of motor-bus competition, its free use of the highway, and the financial condition of the carriers are not within the purview of the commission in carrying out the law, but these are matters to be considered by the legislature. The commission must look to the public convenience. It will expect, and must insist, that public convenience be fully met by the existing carrier. If the existing carrier does not see fit or is incapable of furnishing the adequate service which the public requires, then it must expect the competition of other means of transport which will provide such service. There is a use and place for motor-bus transport. The public has shown that it desires and will insist upon the additional convenience of bus service.

While not very many decisions support this view, there are decisions which indicate that the commissions believe that it is better for the existing agencies of transport to make use of the motor-bus rather than to let new and untried companies take this field. The commission of the District of Columbia indicated that where additional transport facilities are needed, they should be furnished by existing transport agencies, either street railways or motor-bus lines, rather than by the licensing of new companies.[20]

Likewise the California Commission granted a certificate of convenience and necessity for operation of motor-busses to an electric railway company in preference to other applicants after comparing the expected rates and the financial responsibility of the respective applicants.[21] Attention is also called again to the expression of the Illinois Commission, previously quoted, "that the economic question must now be answered whether railroads intend to fill the field served by their line by the most modern and convenient service adopting and coordinating motor transportation service in so far as it may assist in better serving among the public. . . ."

Since it seems to be a fairly well established fact that the motor-bus is justified both by economic considerations and by public policy, the important question to determine is: what measures, from a practical standpoint, should be adopted to improve control of the situation?

### *V. Control of Bus* vs. *Rail Competition*

Looking at the matter first from the standpoint of the public, the question arises as to whether the motor-bus should be operated by new companies or whether the situation will be handled best by allowing existing transport agencies, whether the steam railroad or the electric railway, to use busses. Undoubtedly in the early stages of the development of this new form of transport a larger number of bus routes will

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[20] *Washington Railway & Electric Company* v. *Washington Rapid Transit Company*, P. U. R. 1922 C, 754.

[21] P. U. R. 1925 A, 698 et seq.

be operated and more frequent service will be provided if the busses are independently operated. The new man in the field ordinarily does everything possible to enlist the support of the public by providing a frequency of service that often is not economically justified. The experience of Indiana shows also that the rates will probably be much lower than the railroad rates and that during this period the public will be convenienced thereby.

On the other hand, one would suppose that the public should have discovered by this time that, in the long run, unrestrained competition among public utilities has uniformly turned out badly in the field of transport. The results of ruinous competition for both passenger and freight service during the first 50 years of steam railroad development provided a lesson that should not be forgotten. The independent bus company will eventually either be forced into bankruptcy, as has been the case in Indiana, or will be compelled to reduce service and raise rates to a level that is economically justified.

There will also be a strong tendency toward the consolidation of small companies into larger ones and the development of larger systems. Even in the earlier stages while the public will be helped by more frequent service and lower rates, it will be injured through the operation of small companies that are not financially responsible. It is true that the laws of many of the states require a showing of financial responsibility and the filing of a bond to protect the traveling public against injury. Nevertheless, there are likely to be many instances in which, through irresponsible companies of no sound financial standing, the public will be subjected to injury without adequate compensation.

### *Justification for Operation of Busses by Established Agencies*

From the standpoint of sound public policy, it appears that the new situation could best be handled by the existing agencies, if they will handle it. The steam railroads and the electric lines over a long period of years have learned the lesson of their responsibility to the public. Public regulation is accepted as a permanent factor in their respective fields. Litigation or evasion of responsibilities to the public are far less likely if the field is occupied by established transport agencies.

Again, if the steam and electric railroads make use of the motor-bus, they will be able to coordinate the two branches of service and give the public much better service than it ever before enjoyed. The rail lines will be used primarily for the longer hauls and express service. Local stops can be eliminated and bus routes of from 20 to 50 miles established to take care of the local traffic. On this basis there will be more direct express service for every one, and the passengers from local points with a run to the next larger town and connection with through trains will be far more conveniently served than they have ever been before. It is true that the same convenience could be provided if the bus lines were in the hands of private companies, but it seems an obvious fact that this could be carried out much more efficiently if the two companies were under common control.

More important than any of these matters is the assurance that with the motor-bus handled by the electric line or the steam railroad it will take its proper place in the scheme of transport. That it has such a place has been demonstrated, but that it has very distinct

limitations has also been shown. If the bus is under other than the existing companies, there will be a constant tendency toward the extension of its use into other cities. There are many cases where over long stretches of railroad there are but one or two trains a day in each direction and these are largely of a local nature. With well-paved highways busses may compete successfully on runs much longer than 100 miles. The bus lines operating out of Chicago to points such as Benton Harbor and Muskegon, Michigan, illustrate this situation. If the railroad companies study the situation to determine where the bus can be operated most efficiently, the public need not fear that a utility which is absolutely necessary for most of the service will be endangered in the performance of that service by ruinous competition of the new carrier.

If we adopt the policy of fostering competition with independent bus companies, the railroads will have but one means of meeting the situation; namely, by reducing the existing service. The loss in revenue will result in a much greater proportionate loss in the income and a continued tendency toward poorer financial condition. To take care of such a situation, an increase in rates will be one of the few solutions. An increase in rates would naturally result in further opportunities for the extension of bus service. From every angle, therefore, it would appear that the public interests would best be served by the encouragement of the control of this new form of transport by the existing agencies.

### *Substitutes Offered by Railroads*

We are confronted, however, by the reluctance of the railroad companies to enter this new field. Apparently they feel that it is not to their best interests to engage in operation other than on rails. Already there is a decided tendency toward the policy of reducing the train service, promoting the long-haul traffic, and abandoning branch lines and service. Obviously this is the only policy possible if the railroads are not to make extensive use of the motor-bus.

There has been a decided movement during the last four or five years toward the use of the gasoline or gas-electric rail cars. These are found on local trains and on branch lines in many parts of the United States and also in Canada. That these cars have a place in our transport system can hardly be doubted. Even the earlier ones showed a reduction in cost of 50% as compared with the cost of steam transport, and the later cars are showing a reduction of approximately 60%. Some of the railroads have added these cars, and have attempted by more frequent service and this better type of equipment to win back their traffic. From the reports received from various sources, however, the gas rail cars do not appear very successful in that respect. They are effective in reducing expenses, but apparently they are not effective in enticing the business or in competing with the private automobile or the highway bus. With the development of the large gas-electric cars having a capacity almost as great as the average branch-line coach, there undoubtedly will be a very definite place for them on runs where the traffic is fairly heavy, but where it is not necessary to have two coaches. Even in the latter case, the situation can be taken care of by trailers. In the many cases, however, where the number of passengers is so small that they can easily be handled in the average large highway bus, that vehicle

is undoubtedly the cheaper, besides possessing other advantages over railroad coaches.

Although the railroads are making extensive use of the gasoline rail car, they are more hesitant about going into the highway bus field. In some cases, this hesitancy is due to charter limitations or other legal restrictions—a very practical consideration. In many other cases, it is due to the belief that the field of the highway bus is extremely limited and that the private automobile is and will be the only real source of loss of passenger traffic. With that in view, the removal of non-paying trains is believed to be the best method of handling the situation. In many instances this will result in a greater saving in expense than the loss in revenue. Furthermore, the experience of most railroads during the last few years has been that the short-haul business on local and branch lines is a liability. With that in mind, it is logical for the railroads to hesitate before using capital, much needed for strictly railroad projects, on a doubtful enterprise. The abandonment of branch-line service would result in a surplus of equipment which could not be used elsewhere and this surplus would be increased by the purchase of busses.

### *Railroads Should Enter Highway Bus Field*

With respect to many railroads, however, it is difficult to escape the conclusion that their best interests would be secured through the use of the highway bus. There are several reasons for this conclusion. In the first place, as has been indicated, there will be a saving in operating cost per mile of close to 75%, and even if taxes are increased to pay for the use of the highways, a very substantial saving would still be possible. This would apply in every case where the maximum number of passengers on the car at one time does not exceed 25 or 30 and where the minimum passengers per train-mile is from 8 to 10. This policy also would give an opportunity to make the same saving through the reduction of steam service as would be accomplished by the negative policy of simply allowing the business to slip away. In this case, however, the railroad will be giving the public the required service. It will be safeguarding its revenues and probably will be increasing them. The writer believes that one of the most significant possibilities of the highway bus is as a developer of new traffic. This conclusion was reached both from the results of his own observation and from the experience of other lines. One of the expressed reasons for the entrance of the Chicago, North Shore and Milwaukee Electric Railway into the bus business was that it would thereby develop new business; the indications are that success has attended these efforts. To many people will occur illustrations of this principle—bus lines operating parallel to railroads on which the amount of business handled is exceedingly small. The writer has in mind definite localities in New England where the amount of traffic on the railroad has for several years been almost negligible, and where the railroads could lose no further business. Bus lines paralleling this line and operating frequent service have been successful. Obviously in such cases business does not come from the railroad. The bus, in fact, has developed new business, presumably from the private automobile.

If the railroad gives this branch-line service on the highway, providing means for handling mail and express, an addi-

tional opportunity for saving comes from the substantial reduction of branch-line maintenance expenses by substituting a freight standard of maintenance. It has been estimated that in such cases approximately 25% of roadway maintenance expenses would be saved. Obviously such a reduction in expenses could not be effected except on lines where all passenger service has been eliminated, but it is believed that the practical field of the motor-bus is in the handling of business in such territories. In all probability such reduction of maintenance expenses would more than offset any increase in taxes on the busses.

Considering the situation in all of its phases, it does not appear that the railroad companies can lose much, if anything, by entering into the bus business where the busses fill a real need. Even if the busses did not pay for themselves and the revenues were less than the expenses of operation, the railroad company would gain. For example, let us assume that a passenger train earned 25 cents gross income a mile and that it had not been taken off because it was the only service provided and the public convenience required its continuance. The cost of operating a steam train will probably be at least $1, meaning a loss of 75 cents a train-mile. The use of the bus would cut the loss from 75 cents to 5 cents. In such a case an independent company could not afford to handle the business, while the railroad company could afford to take this reduced loss as compared with a much greater loss with the steam service. In the larger number of cases, however, the revenues would probably exceed the expenses. There are many cases undoubtedly where the revenues per mile lie between the expenses per mile of the bus and of the gasoline rail bus. Certainly this has been true of railroads which have come under the writer's observation.

One other phase of the situation deserves some comment—that is the rights of the existing independent bus companies. Once these companies have been granted a certificate of convenience and necessity and fulfilled the requirements of the law, their status thereupon becomes substantially the same as that of the steam or electric railway. This has been clearly indicated in the decisions of the state commissions. Furthermore, it is also indicated by the action of the Connecticut Commission in refusing to grant to the bus subsidiary of the New Haven Railroad a certificate of convenience and necessity for busses over routes already occupied by independent companies. This is obviously the only fair policy which can be followed. An additional reason is provided for prompt action by the steam or electric railways toward meeting this new condition. Although many of the companies now in the bus field will drop out on grounds of economy or through the pressure of competition or through the disastrous results of low rates, there is no doubt of the ability of the bus lines to compete if they have rates equal to, or higher than, the railroad rates. If the railroads supplant their local or branch-line service with highway busses, at points now unoccupied, they will be protected in large measure from this kind of competition in such territories. There is every reason, therefore, for earnest study and analysis of the situation by the railroads, and they should enter the field promptly wherever the effectiveness of the bus has been proved. In that way, they can gather in hand and control a situation which otherwise is likely to result disastrously for them.

# THE FAIRWAY FARMS PROJECT

*By* M. L. WILSON

THE Fairway Farms Project is an experiment in farm tenancy and farm ownership. Its objective is to facilitate the climbing of the "agricultural ladder." It is an effort to demonstrate a form of land tenure which leads to ownership on the part of the farmer and which at the same time looks after the interests of the initial owner of the land. Under the Fairway plan the problems of land tenure are approached from the national point of view. All interests are considered. The interests of the tenant farmers, of the landlords, and of the general public are all kept in mind and the goal is the welfare of all.

In the spring of 1924 the Fairway Farms Corporation of Montana was organized for the purpose of carrying out the first of what, it is hoped, may prove to be a series of experiments to find and demonstrate better practices in adjusting the relations of farmers to the land. The agriculture of Montana has been wrecked by a combination of circumstances. Some of these forces were attributable to nature and beyond the control of man. Other forces were the result of national policies over which the farmers were in a position to exercise no control. Still other causes of failure arose from a wrong type of farm management which with proper educational guidance and financial backing can be overcome by the farmers. The Montana Fairway Project is, therefore, quite as much a demonstration of the proper size of farm, of methods of selecting and testing men as tenants and prospective owners, of the efficient method of equipping farms, and of the best type of farming suited to each of the regions in which farms are located, as it is a demonstration in fair methods of adjusting the relations of landowners with tenants who wish to become landowners. Through all these problems which the corporation has attempted to solve in the farmers' as well as the nation's interest runs this idea of establishing better standards and methods in the farming business whereby capable men may more easily climb the "agricultural ladder" to ownership.

The background of the Fairway plan can best be placed before the reader by giving a brief sketch of the origin of the idea and the particular circumstances which led to its first use in Montana.

## *The Origin of the Idea*

The idea of the Fairway plan developed in the mind of H. C. Taylor while he was professor of Agricultural Economics at the University of Wisconsin and at the same time the owner and operator of two farms near Madison, Wisconsin, on one of which he lived. The farms which Taylor bought had been operated by tenants with tobacco as a major crop. The land was in the region required for supplying Madison with fresh milk. Forty dollars was the largest figure that had been seen on the monthly milk check going to either one of the two farms. The farms were not properly equipped for dairy purposes. There were no silos. The barns were not fitted for keeping milch cows. Much

of the soil was too acid for the growth of clover or alfalfa.

After the two farms were purchased, the type of farming was changed. Tobacco farming was dropped. The soil was limed. Barns were constructed. Silos were put up. Cows with capacity for converting feed into milk were secured. The manure from the dairy barns was spread over the entire farm instead of being concentrated on a few acres for growing tobacco. Large crops of alfalfa and clover hay were produced. Abundance of silage was provided by the heavy corn crops. The result was satisfactory, for the milk checks reached more than $600 a month. These farms then produced much greater gross and net returns than ever before.

At the same time other farms in the neighborhood were being rented to tenants who could make little on them and pay little rent for them because the equipment was not adequate and the soil needed medicine in the form of lime and manure. This state of affairs led to the idea that profits could be made and at the same time a number of landowners and tenant farmers benefited if a company were organized for the purpose of buying and rejuvenating rundown farms. The company would put on these farms efficient tenants who wanted to become owners, provide the necessary capital to equip the farms with proper buildings, purchase the lime needed to prepare the soil for legumes, and then lease the farm to the tenants with an option for them to buy at a definite price. The tenant would have the interest of an owner from the beginning and help with the construction work in a manner to keep down the costs which he would ultimately have to pay as a part of the price of the farm. Many retired farmers are securing low returns on their farms because of lack of equipment. Many tenants are marking time on farms not properly equipped for the type of farming which will yield profits. The landowner and the tenant would be benefited by the stepping in of a company with adequate capital to put the farm on a profitable basis. The consuming public is always on the winning side when agriculture is improved. A million dollar corporation to carry out a project of this kind in Wisconsin was conceived, but when Taylor went to Washington to help with the economic work of the Department of Agriculture, the project was dropped.

In the meantime Professor Ely was proceeding with the development of the Institute for Research in Land Economics and Public Utilities. In the summer of 1923 the Laura Spelman Rockefeller Memorial was being solicited for an appropriation for the Institute. The members of the Memorial Board were giving the matter careful consideration. Colonel Arthur Woods, one of the board of trustees of the Memorial, went to Washington and called upon H. C. Taylor, then chief of the Bureau of Agricultural Economics and secretary of the board of trustees of the Institute for Research in Land Economics and Public Utilities, for the purpose of learning more of the purposes of the Institute. He expressed his failure to appreciate the significance of general statements and asked for the suggestion of a concrete project which could be carried out to help agriculture. The response was a statement of the Fairway plan as it had been conceived a few years earlier. Colonel Woods was interested and asked for a written statement.

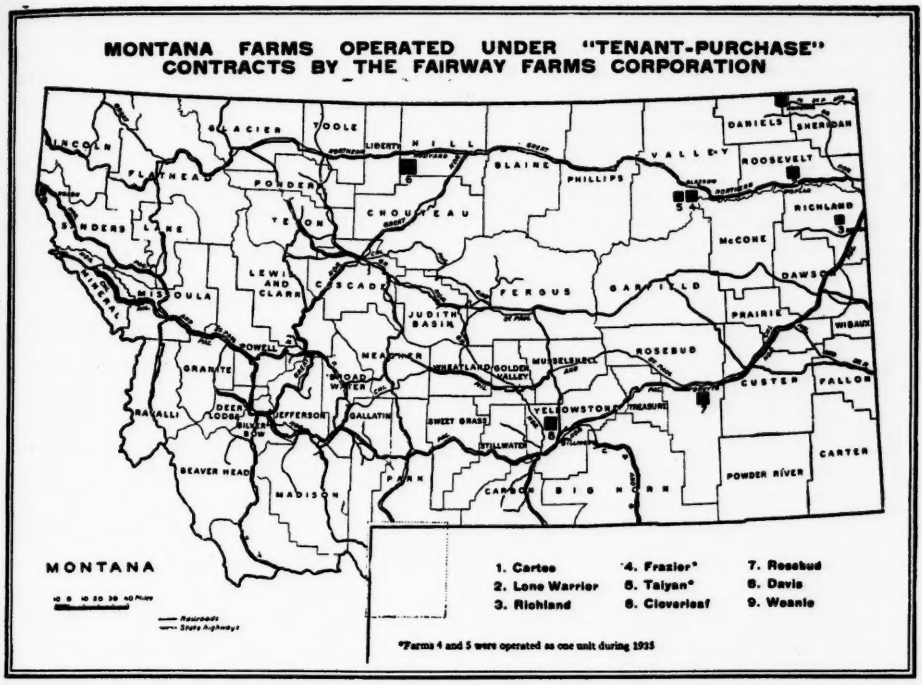
In October, 1923, Taylor was in Montana studying the agricultural situation at the request of Secretary Wallace. He learned of the wreckage

which was proceeding from day to day. He met M. L. Wilson, agricultural economist at the Montana Agricultural College, and Chester C. Davis, the Commissioner of Agriculture of Montana. The agricultural situation was discussed at length. This led to the writing of a letter by Taylor while yet in Montana to Beardsley Ruml, Director of the Memorial, telling him of the conditions which had been found and the desirability of organizing a project and making a demonstration of the Fairway principles in Montana.

In the settlement of Montana, farmers had come from the more humid parts of the country and taken up quarter-section or half-section homesteads. These farms were often too small to give efficient production. The Agricultural College and the United States Department of Agriculture had made regional studies of the situation and had in hand the information essential to organize farms on a more profitable basis. Large numbers of farmers had left the country, but the more efficient were still holding on. Some of the latter had been reduced to poverty by a combination of natural and economic conditions over which they had no control. The holders of farm mortgages had been forced to take over vast areas of land which they wanted to dispose of. These mortgage companies had little information about the types of farming or farming practices which were adapted to the country and the size of farms required for successful operation.

What Montana agriculture needed was a means of rehabilitation based on a careful survey of the possibilities of the land of the various parts of the state which would indicate the type of farming suited to each region, the size of farm essential to successful operation, the price at which this land could be purchased and paid for by the farmers, and which would furnish advice and capital for building up the proper amount of equipment. The Montana College of Agriculture was eager to take the leadership in giving direction and assistance to this resettlement movement and looked upon the Fairway Farms project as an instrumentality useful in this undertaking.

When the matter was presented to the Rockefeller Memorial Board, a representative was sent to Montana at once to look into the situation and secure such facts as were desired as a basis of further consideration. The report was favorable; negotiations continued. The Fairway Farms Corporation of Montana was organized. A formal request for funds was made by the corporation. All that was desired was the use of funds long enough to carry out the demonstration. The corporation wanted to secure the funds from interested parties who recognized the element of risk but who were willing to take the risk in the interest of the cause. It appeared that while the Memorial was interested it could not well make this kind of a disposition of its funds. This did not close the matter, however, because friends in the Memorial were ready to ask John D. Rockefeller, Jr., to make the desired loan. Mr. Rockefeller was interested and agreed to make a loan of $100,000 at 5% without moral or legal obligations of full payment of the principal by the individual trustees of the Fairway Corporation. The trustees are obligated, however, to use their best efforts in making the undertaking successful and repaying both principal and interest as the farms are taken over and paid for by the Fairway tenants. Any surplus resulting from the operations of




the corporation are to be used for educational purposes at the discretion of the board of directors.

Although the existing arrangements were the only possible ones for the present experiment, ordinarily it would be better to finance similar undertakings through the sale of limited dividend stock. Recognizing that this undertaking should be operated as a strictly business demonstration and that certain research work would be essential in carrying forward the demonstration along right lines, the Memorial made an appropriation of $10,000 a year for two years to the Institute for Research in Land Economics and Public Utilities for the purposes of defraying the expenses of research in the Montana area as a guide in the undertaking, and in other areas where similar undertakings might be under consideration.

### *Formation of the Fairway Corporation*

It was deemed necessary to form a corporation in order that the project might be carried on in a manner as nearly as possible comparable with a commercial enterprise operating under existing conditions. The Fairway Farms Corporation of Montana is incorporated under the Montana laws which provide for non-stock, non-profit, agricultural and educational corporations. All powers are vested in a board of nine directors which is a self-perpetuating body, the members of which serve as directors without compensation except for actual expense. The articles of incorporation provide that any profits at the time the corporation is dissolved are to be used for some scientific, educational, or benevolent purpose which the directors may designate.

The board of directors is constituted with the view of giving the corporation the benefit of many different points of view and the judgment of men with years of successful experience in grappling with the types of problems to be met by the corporation. The personnel of the board of directors is as follows:

J. L. Humphrey, president, was for many years a country banker in Minnesota and about ten years ago went to Montana as the state manager for an eastern concern engaged in making farm and ranch mortgage loans throughout Montana. At present Mr. Humphrey operates an investors' service and represents many non-resident clients who find themselves in possession of Montana farms and ranches secured through mortgage foreclosure or of mortgages and other land investments requiring the services of a local representative. His service also makes farm and ranch appraisals for his clients. Mr. Humphrey has had life-long experience in the farm mortgage and farm real estate business and is widely known throughout business and farming circles in Montana. It is doubtful if any man in Montana is better acquainted with the problems of the mortgage bankers and holders of foreclosed lands than Mr. Humphrey. He is president of the Montana Farm Mortgage Bankers' Association.

The vice-president, Augustus Vaux, is a successful farmer and stockfeeder who operates both non-irrigated and irrigated farms in eastern Montana. He is widely known for his judgment and skill in farming matters and for the success that he has attained in his farming business.

The treasurer, Charles Vandenhook, is president of the Commercial National Bank of Bozeman, Montana, and also president of the Montana Bankers' Association. His bank is one of the leading agricultural banks of Montana, and Mr. Vandenhook is considered one of the foremost students of the problems of farm finance in the Northwest. For a number of years, however, Mr. Vandenhook was general manager of one of the large Montana flour mills and elevator companies and, therefore, contributes to the corporation not only his judgment on financial matters, but also valuable judgment as to the marketing policy for the wheat, which is the cash crop on most of the Fairway farms.

Dr. Richard T. Ely represents the Institute for Research in Land Economics and Public Utilities and has been of great service to the corporation in the formulation of its plans and policies. Dr. Ely's counsel and services have been of inestimable value. Because of his acknowledged leadership in problems of land economics, all readers of this article will readily recognize the type of judgment and service which Dr. Ely alone is able to give the corporation.

Dr. H. C. Taylor, who is the father of the project, has been consulted constantly by the executive committee, and no action of any consequence has been taken by the committee without first securing his judgment. His experience on his own farms plus his wide experience in farm economic matters have been the most important factors in developing the plans of the corporation.

Dean Leon C. Marshall, Head of the Department of Political Economy of the University of Chicago, has served as treasurer during the formative period of the corporation and has assisted in formulating its financial and business policies. Now that the corporation is a functioning concern with its transactions almost wholly in Montana, Dean Marshall prefers that the details of its accounts be placed in the hands of Mr.

Vandenhook; he represents on the board of directors the point of view of the general economist and has a deep insight into the fundamental problems involved in the Fairway project.

Dean J. M. Hamilton, Head of the Department of Economics of the Montana State College, sees the problem in its Montana setting. Dean Hamilton for more than 30 years has been a close student of farming problems in Montana.

Chester C. Davis, another director, was Commissioner of Agriculture in Montana at the time of the inception of the corporation. Prior to becoming commissioner, he was for a number of years editor of the *Montana Farmer*. As Commissioner of Agriculture Mr. Davis gave much thought and attention to the problems of settlement and utilization of Montana farming lands, especially those lands which had passed into non-resident ownership through foreclosure because of the agricultural depression.

M. L. Wilson, secretary and managing director, was for many years in charge of the County Agent work in Montana and as farm economic specialist in the Extension Service has an intimate personal contact with the problems involved in the Fairway project.

With the advice of these men to fall back upon, the executive committee went ahead in carrying out the detailed policies which had to do with (1) selecting the land; (2) contracting for acquisition of land; (3) formulating the tenant-purchase contract; (4) selecting the tenants; (5) giving advice on the best organization and farm practices for each farm.

### *The Lands and Farms Selected*

The corporation at present has eight farm units. In selecting and organizing these farms much study was given to determining the "economic unit." In each case an attempt was made to bring together the amount of land which could be most efficiently used by a farm family with the equipment adapted to the specific case. In the dry-land areas one cause for failure in the past was that the individual holdings were either too small or, in a few cases, too large. In almost every case the present Fairway farms are consolidations of what had been separate farms. Of course, these larger farms are affected by changed methods of production, which will be discussed later.

The following brief description gives some idea of the size, organization, and type of farming of the present farms. The Davis Farm near Comanche, Montana, consists of slightly more than 4 sections (2,560 acres) and is a consolidation of what were 8 separate farms. In 1926 this farm will have approximately 1,000 acres of spring and winter wheat, 600 acres of summer fallow, 300 acres of corn, 120 acres of dry land alfalfa, and approximately a section (640 acres) of pasture. The farm is operated by the tenant and his son, who employ some additional labor during the seeding and harvesting period. The farm has 3 silos and 25 head of milk cows that are milked during the winter. A 15-30 three-plow tractor and a 12-horse team supply the farm power. The corn is planted with a two-row lister[1] and cultivated with a two-row cultivator, and most of the summer

[1] By using the lister which combines plowing, seed bed fitting and seed planting in one operation, the corn is planted at the bottom of the furrows where the soil is moist and germination is assured. As the corn grows the furrow is gradually filled through the process of cultivation, thus putting the corn plant in a position to withstand long periods of drought.

fallow in 1925 will be cultivated with the tractor and a 12-foot duckfoot cultivator. There are but few farms in Montana at the present time which have the same organization of different lines of production as this farm, and it is expected that this farm will demonstrate the efficiency of certain low-cost systems of management.

The Rosebud Farm consists of 640 acres and is a consolidation of three foreclosed units. It has three poor sets of buildings which will be gradually combined into one farmstead. The farm is essentially a one-man farm and the only labor hired is during harvesting and the first cultivation of listed corn. In 1926 this farmer expects to raise 160 acres of wheat and oats, and 240 acres of listed corn. The farm is fenced hog-tight and feeder pigs will be purchased to harvest the corn during the fall. An attempt is being made on this farm to introduce certain low-cost practices in connection with the growing of early Flint corn. It is hoped also to perfect a type of listed corn cultivator whereby one man with 8 head of horses can cultivate 4 rows at a time or approximately 30 acres per day. If this is successful, it will enable one man to do what is now being done under the best of conditions by two men.

The Richland Farm is one section in size. It is fenced sheep-tight. The 1925 cropping system was as follows: Grimm alfalfa, in cultivated rows for seed production, 160 acres; field peas, 25 acres; wheat, 25 acres; oats and feed grain, 30 acres. The farm carries 100 head of breeding ewes and sufficient cows to supply the family living.

The Taiyan Farm consists of 130 acres of irrigated land. The virgin sod was plowed in 1925 and the land is being seeded to alfalfa and feed crops for the coming year. In connection with the irrigated land there are approximately two sections of dry farming wheat land, one of which will be in wheat and the other in summer fallow each year. This farm has 27 head of Holstein cattle, a 15-30 three-plow tractor and a 10-horse team. Two men do the work. It is anticipated that the management on this farm will work out a combination between irrigated land, dry farming land, and grazing land, which, as yet, is very uncommon in the Milk River Valley of Montana. This farm is probably three times as large as the average combined irrigated and dry land farm of eastern Montana.

The Cloverleaf Farm, which is located near Rudyard, Montana, consists of one and three-quarters sections of tillable land and about three sections of grazing land. This is a two-man farm and it is expected that these two men will be able to raise about 400 acres of wheat each year, with a like amount of summer fallow and corn, and take care of from 50 to 75 head of dual-purpose cattle.

The other three Fairway farms for the most part resemble one or the other of those farms that have just been described. However, they are in process of development and were not operated as farms in 1925.

### *Acquisition Contracts*

In the organization and development of its farm units the Fairway Farms Corporation has in a few cases purchased the lands outright. The reasons for so doing were either that the corporation was able to secure the lands at much better terms or that it did not feel justified in taking the risk involved in setting up a tenant-purchaser and making the necessary advances for equipment and operating capital without

owning the land. However, much thought has been given to the problem of how separate parcels of land could be brought together into one farm unit and a contract developed between the owners of this land and the Fairway Corporation whereby the landowners supplied the land and the Fairway Corporation the equipment and money necessary to consolidate the individual tracts into an economic farm unit.

The corporation has attempted to formulate an equitable and fair contract whereby the landowner places a valuation upon his land and turns it over to the Fairway Corporation which then endeavors to make a farm owner out of the tenant and at the same time obtain reasonable compensation for its services and risks, and a profit on the entire transaction which will be large enough to show that other similar enterprises could be carried on in a regular, businesslike manner. In this connection the corporation, working cooperatively with two large holders of Montana lands, which reverted to them through foreclosed mortgages, has developed two distinct types of acquisition contracts which are believed to be practicable and which, if the project proves successful, may have wide usage.

The first of those contracts was developed with the North American Mortgage Company. Under this contract the Fairway Corporation and the mortgage company agreed upon the valuation of a 530-acre farm which was made up of three separate and distinct foreclosed farm units. The Fairway Corporation guarantees to the investor interest and taxes during the life of the contract. The payments on the principal begin with a nominal sum (less than one-fourth of the anticipated net income) and increase slowly for a period of five years. From the fifth to the fifteenth year the Fairway Corporation, through the tenant-purchaser, guarantees to pay the remainder of the principal. When 50% of the original purchase price is paid, either the Fairway Corporation or the tenant-purchaser will be given a deed to the property and the investor agrees to take a first mortgage for the remainder. The lower rate of payment for the first five years was deemed necessary so as to allow the Fairway Corporation to equip the tenant and to secure the repayment of these advances before the bulk of the net income from the farm was used to pay for the land. The Fairway Corporation is also permitted in its resale of the land to the tenant-purchaser to add a sum which it anticipates will cover its cost of supervision, overhead, and return a reasonable profit. Since operating capital, work stock, tractors, machinery, and so forth, depreciate very rapidly, it seemed right that the Fairway Corporation should be repaid for the advances made for these purposes before any large proportion of the net income went into the land.

The second type of aquisition contract was worked out between the Fairway Corporation and a life insurance company, which owns considerable Montana dry land that was acquired through necessary foreclosure, largely because of abandonment during the recent agricultural depression. This company, of course, is interested primarily in its investment rather than in immediately converting the investment into cash. The particular contract covers a unit of 960 acres which is made up of three foreclosed, independent units. In the contract the life insurance company gives the Fairway Corporation what might be termed a "continuous option to purchase." The option remains in force as long as the Fairway Corporation

pays the interest and taxes. Whenever 25% of the agreed purchase price is paid to the insurance company, its regular farm sale contract will be issued which provides for definite amortized annual payments. While the farm is in the option status the Fairway Corporation agrees to turn over to the insurance company one-third of the gross receipts as a fund to cover interest, taxes, and payments on the principal. The Fairway Corporation may use the other two-thirds of the gross income for repayment of advancements to the tenant and other expenditures necessary to consolidate the three farms into one farm unit. Thus we have an arrangement whereby the Fairway Farms Corporation guarantees the interest and taxes, on the one hand; and the life insurance company, on the other hand, puts in the land at a conservative valuation and extends liberal terms both in the rate of interest and amount of annual payments.

### *The Fairway Contract*

The Fairway tenant-purchase contract is the basis for the practical operation of the Fairway Project. Incorporated in it are certain features which have not heretofore been practiced to any degree in the Northwest. The executive committee of the corporation, its attorney, and certain experienced farm mortgage operators have spared neither time nor effort in the attempt to formulate this legal document so as to embody the objectives of the corporation. The result is a contract which differs markedly from the sale contracts which prevail in this region.

The prevailing farm sale contracts provide either (1) for the payment of certain sums annually regardless of the farm income for that year, or, (2), in the case of a crop purchase contract, for the purchaser to turn over to the seller of the farm a certain portion of the crops raised each year. Under either plan, in a year of poor yields or low prices the purchaser may so reduce his operating capital as to hamper seriously his farm business organization, thereby reducing his opportunities for larger incomes in future years. The farm sales contract now in common use is satisfactory to the man who is able to make a substantial first payment and who has sufficient operating capital and equipment to carry on a given farm business in an efficient manner. It is not, however, adapted to the tenant who lacks capital and who is entirely dependent on each succeeding crop for carrying out the terms of his farm purchase. The required specific payments and the rigid, inflexible cancelation clauses may give the seller opportunity for unjust action in case land values have increased during the life of the contract.

The Fairway tenant-purchase contract is an attempt to correct these undesirable results. The aim is not only to protect the buyer against possible unjust action by the seller, but also to help the tenant-buyer to satisfy completely the reasonable obligations put in the contract by the seller. These purposes may be made clearer by analyzing briefly the outstanding features of the Fairway tenant-purchase contract.

1. *Methods of payment.* The Fairway tenant-purchase contract does not provide for the payment of a specific sum at any specific time but does provide for cancelation, as will be discussed hereafter. In lieu of specific annual cash payments the Fairway contract provides that all returns from the farm as a unit, from whatever sources they be, live stock, grain, or from rented lands, shall constitute a fund called the "gross

income," to be held by the corporation, from which shall be deducted the following items:

(*a*) All taxes, both real and personal;
(*b*) Insurance on buildings, crop, and property;
(*c*) Advances made by the corporation for farming purposes;
(*d*) Interest on the stated purchase price and advancements at 7%;
(*e*) All miscellaneous operating expenses;
(*f*) Advancements for farm or live stock equipment;
(*g*) Advancements to the tenant for family living expenses not to exceed an amount agreed upon by the tenant and the corporation.

The amount remaining after the above deductions are made from the gross income is to be termed the "net income" and is held in trust by the Fairway Corporation until such time as the accumulated funds equal 25% of the purchase price; when it will be applied on the option to purchase and a farm sale contract will be issued, replacing the tenant-purchase contract.

Under the above arrangements the tenant-purchaser is not hampered by the lack of a proper amount of operating capital such as is necessary to get the largest net returns from the operation of the farm. Also the tenant purchaser is not handicapped by any annual stipulated cash farm purchase payments, obligations which in case of poor crops might cause him to sell his live stock or otherwise deplete his operating capital.

2. *Purchase price.* A striking feature of the Fairway contract is the fact that it is neither an exclusively leasing agreement between a landlord and tenant nor is it a sale contract between owner and purchaser. While it includes certain features of both, it has also incorporated a long-time arrangement whereby a man starting as a tenant evolves gradually to the position of an owner, and a definite statement of the purchase price of the farm, whereby the tenant knows exactly what he will pay for the farm and the terms. On the other hand, the owner receives reasonable returns on the capital which he has invested, and the tenant is given the advantage of probable increases in valuation during the life of the contract.

3. *Supervision.* The Fairway Farms Corporation and the tenant-purchaser, at the inception of the contract, agree upon a plan of organization and operation for the farm unit. This plan incorporates the most efficient methods of production and of selection of enterprises, so organized as to yield a satisfactory net income. The Corporation has been assisted in the formulation of these farming plans by the Department of Farm Management of the Montana State College of Agriculture.

4. *Insurance.* In the limited number of cases where the corporation finances capable young men who enter the contract with a very small amount of capital of their own, added protection is given the corporation by requiring each young man to take out a life insurance policy in which the corporation is named as beneficiary. It is provided, however, that in case of the tenant's death the corporation will deduct whatever amounts are rightfully due it, turning over the balance of the insurance money to the heirs of the tenant.

5. *Cancelation clauses.* The Fairway contract, of necessity, for the mutual protection of both parties, contains three separate and distinct divisions of the cancelation clause which are as follows:

*(a)* An absolute provision for cancelation on the part of the Fairway Corporation in case of unexpected dishonesty or incompetency on the part of the tenant-purchaser.

*(b)* Cancelation by the corporation in the event of death or permanent disability of the tenant-purchaser, in which case all net profits created up to that time shall be turned over to the tenant-purchaser or his heirs.

*(c)* If at the end of five years the net profit does not amount to 25% of the purchase price of the land stipulated in the contract, the contract is automatically terminated and whatever net profit has been created shall be divided equally between the Fairway Farms Corporation and the tenant-purchaser.

The purposes of the first and second cancelation clauses are obvious and self-explanatory. Some explanation of the reason for the last clause is desirable. In view of the prices at which these farms will be sold, it seems reasonable to assume that under any ordinary circumstances the tenant-purchaser will have no trouble in accumulating the required 25% of the purchase price, which 25% will vary from $2.50 to $7.50 per acre, before the expiration of the five-year period.

The directors realize that from a legal point of view most contracts are not executed unless there is an absolute provision for termination at some fixed time. The corporation may, in some instance, be disappointed in a tenant-purchaser. Although this man may not be incompetent or dishonest, still there may be elements in his personality which prevent his completing the contract. In such a case the Fairway Corporation must be protected and legally be able to cancel the contract and make a division of any net profit, as specified, in a fair and equitable manner in view of all of the circumstances. It must also be recognized that in some instances the tenant-purchaser might not care to go beyond the five-year period and might like to be relieved.

The executive committee has endeavored in this contract to be eminently fair to the tenant-purchaser and at the same time provide the corporation with the protection which is absolutely necessary for successful operation. It has endeavored to create a strictly business-like contract which does not savor of philanthropy or visionary features, and which could be put into practice on a large scale by a strictly business organization. Without doubt problems will arise from the practical operation of this contract that the corporation has been unable to foresee, and these problems may necessitate alterations in future contracts.

This tenant-purchase contract may be extinguished when 25% of the purchase price has been accumulated and replaced with an ordinary sales contract, the mortgage being held by the Fairway Corporation.

### *Selection of Fairway Tenants*

In selecting tenants the executive committee has endeavored to secure men who are fairly typical of the different types of men in Montana who are now climbing the "agricultural ladder." In one case a graduate of the State Agricultural College, who had served as a very successful county agent and who had saved $3,000, was established on a farm involving an outlay of $8,000 by the corporation. This young man and his wife, who, by the way, is also a college graduate, were very desirous of passing from the salaried status to that of farm operator. He had demonstrated his thrift and sound judgment. The Fairway Corporation has given him a chance to use an amount of live stock and equipment in the start that he would not be able to secure from any ordinary landlord.

Another college-trained young man of exceptional energy and capacity left a salaried teaching position paying about $2,500 a year to become a tenant-purchaser on one of the Fairway farms. This young man had very little capital. On the other hand, he gave promise of having exceptional business ability, energy, and capacity for handling a good-sized farm. He is operating a farm consisting of approximately two sections (1,280 acres) of dry farming land and one quarter-section (160 acres) of irrigated land. In other words, he is representative of a type of young man who could probably rise very rapidly in some field of city industry but who, since he lacked capital, would probably never farm because of his inability to associate himself as a proprietor of a farm unit commensurate with his managerial ability.

Another tenant who is operating a four-section dry land unit (2,560 acres) was fairly comfortably situated before the war. However, a combination of circumstances such as expansion in his farming business incident to the war, the purchase of considerable farm machinery at war prices, together with crop failures and low prices, caused the loss of his farm and equipment through foreclosure. He began, however, four years ago with almost nothing and in three years, by industry and thrift, was able to accumulate considerable farm machinery and 14 head of milk cows. Although this man had demonstrated that he had considerably more managerial ability than the average farmer, he was not able to secure the credit with which to operate a dry land wheat farm based on a power unit of a 4-plow tractor and a 12-horse team. This Fairway tenant will have approximately 1,000 acres in wheat, 200 acres in corn, and 100 acres in alfalfa in 1926. He is typical of many men in Montana who at one time were owners but who lost their farms and are now struggling as tenants, or who lack equipment and capital, especially live stock, for efficient farming.

Another tenant went through the depression and came out approximately out of debt with a few head of live stock and 160 acres of land, but this unit was entirely too small for the type of farming suited to the region. This man and his family were placed on a two-section Fairway farm and supplied with a 4-plow tractor, sufficient additional work horses to make a 12-horse team, machinery and live stock to give an efficient combination of difficult lines of production for the farm in question.

Two of the tenants are men who are emerging from the laborer to the tenant stage. One of these men is about 45 years of age with a wife and 3 children. Ten years ago he had a farm and equipment worth between $15,000 and $20,000. This money, however, was lost through a set of unfortunate circumstances—family sickness, low prices, and crop failures. Since he had no capital whatsoever, it was proposed to him that he should work for the corporation, operating a farm on a monthly wage basis, which would be a little less than he would have obtained elsewhere during 1925, and if his work was satisfactory, the corporation would in turn set him up as a full-fledged Fairway tenant-purchaser in 1926. This man worked doubly hard during 1925 and made money for the corporation on the farm which he operated on a salary basis. This farm and its equipment have now been turned over to him on the regular Fairway tenant-purchase contract.

Another of the tenants is a man probably 45 years of age with 7 children who came to Montana as a worker in the beet fields. He is a German and

for 3 years worked as a laborer on a farm which was purchased by the Fairway Corporation. His work as a laborer was satisfactory, but the corporation did not wish to give him the full tenant-purchase contract until convinced that he was capable of carrying on the farm as a regular farm operator. The farm was therefore leased to him for a trial period of one year. The special provisions of his contract were that the corporation supply the farm and equipment and the tenant perform the work. This period of trial was satisfactory and he is being given the regular Fairway contract for 1926.

*Farm Organization and Practices*

Wheat is the main cash crop on the majority of the corporation's farms. However, in organizing these farms three things have been considered: (1) A large output per man, to be secured through allocating greater power per worker, either by means of a 12-horse team or a medium-sized tractor; (2) low-cost practices, such as the "duckfoot" instead of "plowed summer fallow"; header barge, or small combine harvester-threshers instead of stationary threshing; and (3) supplemental live stock enterprises, such as dual-purpose cows, sheep or hogs sufficient to supply the family living and yield some income in poor crop years. By means of the duckfoot cultivator, which is a heavy cultivator with large "V"-shaped shovels, it is hoped that one man with a 12-horse team or tractor can summer fallow at least twice, and probably three times, as much land as where the land is plowed and cultivated in an ordinary manner. This method does not seem to affect materially the yields of wheat but greatly increases the number of acres of wheat which one man can raise. With the header barge now in use on several of the Fairway farms, the heavy cost of harvesting small grain can be cut nearly in half as compared with ordinary methods. When the acreages on the farms justify, combined harvester-threshers will be used. It is anticipated that by the use of the 12-foot combined harvester-thresher two men, with but little additional labor, will be able to cut and thresh as large an acreage as they can seed and thereby very greatly reduce costs.

As illustrations of low-cost practices which the corporation has introduced on its farms, the experiences on the Rosebud Farm may be cited. One man, with a small amount of additional hired labor, raised 230 acres of early Flint corn. This corn was listed by means of a two-row lister pulled with a small tractor, and cultivated with a two-row cultivator. The corn, however, was raised in 1925 as a substitute for summer fallow and the land will be seeded to wheat in the spring of 1926. Had the land been summer fallowed, almost the same amount of labor would have been expended, but experimental data show that in this section of Montana the wheat yields of spring wheat on clean corn land are almost as high as on summer-fallowed land. As the case now stands, this farmer received $2,500, or approximately 25% of the purchase price on this farm, for the corn which was raised as a substitute for the summer fallow.

On each of the dry land farms the corporation is developing feed reserves. The farm plan sets up as a standard that at least one full year's supply of feed should be kept in reserve at all times so that in case of crop failure or bad years it will not be necessary to sacrifice live stock due to lack of feed. Sweet-clover pastures are being seeded

on the wheat land. The farming plans also provide for a considerable number of milk cows to be milked during the winter on each of the wheat farms. Because of the extreme variability of the seasons from year to year in the sections of Montana in which most of the farms are located, it is necessary that there should be large reserves for the farms to draw on in case of failure in a particular year. The farm plans provide for carrying these reserves in the form of moisture in summer fallow, large stores of roughage and other feed, and live stock. The plans for financing also provide for sufficient cash reserve so that the corporation could carry on during a bad year without obtaining loans on any of its invested capital.

The Montana State College and Agricultural Experiment Station is vitally interested in the Fairway Farms Corporation and has given valuable assistance and cooperation. The nature of the problem is such that the project can best be carried on by a separate corporation rather than as an adjunct to the college. But although the board of directors assumes full responsibility for the corporation's activities, the college has been extremely generous in giving all possible assistance. Although the farms are in no sense college demonstration farms, the college is given access to all records and is free to make use of the results secured from the project, either for resident or extension teaching. The detailed farm records and accounts which are being kept on the farms will be analyzed annually by the research men in Farm Economics in the Experiment Station. Two members of the board of directors are members of the Agricultural Economics Department of the college and it is anticipated that the college will make much use of the data secured from the project in teaching Land Economics and Farm Management.

While this undertaking is not a project of the United States Department of Agriculture, nevertheless, the Bureau of Agricultural Economics has given valuable service and advice to the corporation during its formative period. In certain aspects the project becomes somewhat of a demonstration of the results of studies which have been made by the Bureau of Agricultural Economics into types of farming and profitable farm organization in the northwestern spring wheat belt.

### *Accomplishments*

Up to the present time the Fairway Farms Project has definitely accomplished three things: (1) the organization of a going concern for the purpose of securing farms and reselling them to capable tenants under the Fairway plan; (2) development of the Fairway tenant-purchase contract; and (3) the selection, organization, and equipment of eight farms. These accomplishments have been made possible despite unfavorable natural conditions, by the application of Fairway principles, including expert advice and supervision in certain phases of farm management.

The 1925 cropping season in Montana was considerably below the average. May and June were favorable months but July was a month of unprecedented heat, and cereal crops in eastern Montana suffered from the excessive heat but not from lack of moisture. These climatic conditions reduced the yields of wheat and flax to less than half the yields which were anticipated in the latter part of June. Also there was much rainy weather during the Autumn which greatly delayed harvesting and

threshing, and increased the expense of these operations.

Such seasonal variations, however, are to be expected in the region in which the farms are located, and the organization of the farms must be such as to offset such experiences. At the time that the extreme heat was damaging the cereals, it was benefiting the corn and the alfalfa seed crops on several of the farms. The farm incomes last year were considerably benefited by the sale of live stock products. As an example, the gross income from 100 ewes which are carried as a supplemental enterprise on one farm was approximately $1,000. The wheat yields on this farm were less than 10 bushels per acre, and although the wheat would not much more than pay expenses, there was enough income from the sheep to carry the farm and leave an appreciable net income besides. At the beginning of the year most of the farms were in a run-down condition and when the tenants moved on them last spring it was necessary to make heavy tenant advancements to be used for the purchase of seed, feed, gasoline, oil, and equipment. In the spring of 1925 there were less than 200 acres of summer fallow and corn land ready to be seeded to spring wheat on all the farms. Now there are approximately 2,600 acres of corn and fallow which will require but little fitting before the 1926 crop is seeded and which now carry a good deal above the normal moisture reserves to supplement the 1926 rainfall.

In spite of the various difficulties and heavy expense in starting the farms, all of those which were cropped in 1925 returned interest, taxes, and other expenses incident to the production of last year's crop. Two complete sets of farm buildings were erected and a new house placed on a third farm. It is hoped that these farms will be operated at nearly their maximum efficiency in 1926. Much of the income this year was put back into improvements and equipment. From now on only small sums will be needed for advances to tenants and the net income can be used for liquidating the tenant's indebtedness to the corporation. Farm plans and budgets for the tenants and their resources are being worked out for the crop year 1926. The basis for these plans, or rather for the adjustments which are being made in the long-time farming program of the farms, is based upon the information contained in the *1926 Agricultural Outlook* issued by the United States Department of Agriculture.

Thus far the Fairway project brings into striking relief two problems. The widely scattered and mostly non-resident land-holders (who secured their lands through mortgage foreclosure) fail to appreciate the importance *(a)* of the consolidation of small tracts, which are sub-marginal as family farm units under present conditions, into farms which are still family farms and can become super-marginal with the introduction of new methods that give a larger output per worker; and *(b)* of a farm organization which will give reserves to carry through poor crop years. There is a marked tendency, however, among successful farmers and present tenants in eastern Montana to lease additional lands and thus expand the size of their units. In so doing, these farmers are not turning from safe farming to "shotgun methods," and it is natural to assume that when they have paid their present debts they will begin to purchase the adjoining tracts which they are now renting. The Fairway project, it is believed, points the way to the solution of this problem. An aggressive leadership has been required. But the cor-

poration hopes to demonstrate how the interests of both the landowner and the tenant can be harmonized in such a way that the tenant can gradually become the owner of the land.

The other striking lesson gleaned from the experiment thus far is the difficulty of making land valuations, which is the first step in the actual consolidation of separately owned units into well-balanced farms. The management of the corporation hopes to go into this problem and, in a few cases where definite requests are made, to mediate between the landowners and the tenants thereby assisting others in trying the Fairway plan. The problem of a scientific basis for land valuation as a substitute for "sound judgment," however, still remains largely unsolved.

The project is now passing into the second year of farm operation and the management feels that the outlook for the present farms is very hopeful. It is believed that the tenants will make considerable progress during 1926. However, should this prove a poor crop year, the farms are so organized that with the present supplemental enterprises the tenants can go through with little out-of-pocket loss. Continued emphasis will be placed on low-cost practices and large output per worker, as well as supplemental enterprises.

The owners of foreclosed lands, as a group, are watching the Fairway experiment with much interest. Some large landowners are developing leasing contracts which savor of the Fairway principle and are making advancements to their tenants on the basis of the amount of work done by the tenant and adjusting the portion of the crop which the landlord takes to the advancement he has made. The general interest in the project is evidenced by numerous requests which have been received for copies of the Fairway contract, both by individuals and large landholders. These requests do not by any means come exclusively from the Northwest but a number have been received from the cotton regions of the South, the Southwest, and from the Corn Belt.

# THE CITY HOUSING CORPORATION AND "SUNNYSIDE"

*By* RICHARD T. ELY

THE standard of living does not, as a usual thing, include as generous a provision for housing as it does for food and clothing. The reason is partly psychological. Because the securing of a home involves a large lump payment, particularly with relatively high construction and land costs, it is looked upon as something difficult or even impossible to attain, while the payments for food and clothing, made in smaller sums though as great or greater in the aggregate, are regarded as simple and fairly easy to meet.

The cost of housing is a bugbear to the people who are trying to live each year a little better. The greatest aid that can be given them in their efforts to raise their standard of life is that which will help them over this obstacle —the lump payment for a home. Already there is much being done in this way by the building and loan associations which lend to prospective home owners the larger portion of the purchase money, taking a mortgage on the home, which is paid off in monthly or weekly instalments.

This service, while invaluable, does not fill all of the needs of those who purchase homes. Building and loan associations do not lend more than a certain fraction of the value of a home. That part of the purchase price above this fraction is often a considerable sum, frequently more than those who desire to purchase have accumulated. They must borrow part of this on second mortgage; and this second mortgage is often difficult to place. Many persons of wealth would be glad to invest their money in these second mortgages if they were sure of the safety of the principal and a moderate income upon it.

But there are other alternatives for those who wish to do something to improve the housing conditions of people of limited means and especially to do so by increasing home ownership. One method is—the method followed by the City Housing Corporation—to subscribe for stock with limited dividends and let the stock make up the difference between what the purchasers can pay and what somebody else must pay to secure the construction of the homes. In other words, the company may with its stock replace the second mortgage.

On the other hand, the company itself may borrow money on first mortgages and then let the purchasers of homes give a second mortgage, and the balance that cannot be covered by mortgages will be covered by subscriptions to stock. A second-mortgage company at Niagara Falls, New York, supplements the building and loan association in that place and lends money at 6%. A variety of combinations is possible, but into all of the intricacies of financing the construction of homes it is not necessary to enter now and here. This much is to be said, however: no undertaking of this sort ought to be conducted entirely upon borrowed money. In fact, other things being equal, the larger the proportion of stock to borrowed money, the better.

Interest must be paid upon borrowed money to avoid receivership, whereas the dividends need not be paid unless they are earned, and a failure to pay dividends does not mean bankruptcy. In the case of the City Housing Corporation, not only have dividends been paid, but at the present writing a surplus of some $200,000 has been accumulated.

### *I. Organization and Purpose*

The City Housing Corporation, organized in March, 1924, as a limited dividend company (its dividends on the stock being limited to 6%), seeks as its main purpose to make a contribution to the solution of the housing problem. It has no Utopian aspirations, but is organized on sound business principles. It is at the same time animated by the desire to render social service not only by the construction of better homes and communities than those ordinarily available to people with small incomes, but also by establishing standards which will encourage similar ventures by private enterprise in other communities.

In a leaflet issued by the City Housing Corporation its purposes are stated in more detail as follows:

> To develop better plans and methods for home and community building and to demonstrate the advantages of large-scale purchase of land and quantity production of houses.
>
> To build the type of low-priced houses that are needed by self-respecting citizens in New York.
>
> To show home-seekers of small income that they can *own* first-class homes for what they are now paying in rent for second-rate places.
>
> To encourage and develop cooperative methods of home ownership.
>
> To demonstrate the value of ample outdoor play space adjacent to homes and to convince builders and operators that this can be supplied on a practical business basis.
>
> To arouse the public to a recognition of the social obligation which rests upon it to make it possible for citizens of moderate means to live in decent homes.

Thus the fundamental purpose of the City Housing Corporation is *to establish standards and methods* and to stimulate others—not merely those who have similar benevolent aims, but private builders working for a profit. It is true, of course, that some features of the City Housing Corporation and its work, as will be described presently, cannot easily be duplicated by private builders and hence that the corporation is to a certain degree in a separate class from the ordinary commercial enterprise. Nevertheless, the corporation has sought to avoid making this gulf so wide as to be impassable. Indeed, it might well be unwise for commercial builders to match in every detail the work at "Sunnyside," for in other localities the characteristics of the community and of its residents might differ markedly. Nevertheless, all progress in housing and living conditions has come gradually by the establishment and copying of better standards of practice. In this evolutionary spirit the corporation is trying to point the way to better but still attainable housing standards, believing that progress will come largely by experimentation and emulation on the part of philanthropic as well as commercial builders. Moreover, the City Housing Corporation seeks to benefit principally those home-seekers whose incomes range from $1,200 to $3,500, the very group which has been most severely pinched by the lack of adequate housing. If standards and methods can be established and others stimulated to work for better housing for this group particularly, then the work has national and even international significance.

### *Laboratory Features*

To the Institute for Research in Land Economics and Public Utilities "Sunnyside" is an urban laboratory, as the farms of the Fairway Farms Corporation purchased in Montana are a rural laboratory. As in the case of the Fairway Corporation, the Director of the Institute is at the same time a member of the board of directors of the City Housing Corporation. It is the aim of the Institute to study carefully all the economic aspects of "Sunnyside" and also to gather the results of experience of more or less similar developments in the United States and in other countries, and thus to be in a position to aid all those who want to help solve the housing problems and to make living conditions better.

## *II. Description of the Project*

"Sunnyside" is the City Housing Corporation's first project. It is situated on Long Island in Long Island City, within 15 minutes' running time to the Grand Central Station, at an expense of 5 cents for transport on the Queens' Subway cars by the Corona trains. "Sunnyside," then, is within easy and cheap access to the very heart of New York City.

The construction was begun in 1924 on land purchased by the City Housing Corporation, comprising over 1,100 lots. Two units of the construction work have been completed and plans have been made for the third unit which is now in process of building. By the end of 1926 it is expected that altogether homes will have been provided for more than 600 families. Ultimately the number of people living in "Sunnyside" may be somewhere around 5,000.

The homes provide more than merely "decent" housing as the term is sometimes used. All of the surrounding conditions are sanitary and wholesome from the point of view of the entire family. On inspection of "Sunnyside," one familiar with housing in the vicinity of New York notices in several respects the superiority to other developments designed for people, not merely of similar resources, but even of far larger resources.

Let us notice a few particulars of superiority. First of all, the large amount of open space attracts the attention of those familiar with conditions in and near New York City. The houses cover only about 28% of the land, whereas other developments even of the better sort in the neighborhood frequently cover approximately 50%.

The use made of this open space is a second item in the list of superiorities. The houses are naturally row houses. Not merely is this inevitable in such close proximity to the heart of New York City, but many people regard them as superior to detached houses, unless there is considerable space between the houses. Detached houses within a few feet of each other lack the privacy afforded to row houses, and architecturally are often less attractive. Each house, two rooms deep, affording light and air in front and in the rear, has a small drying green, but otherwise the space in the rear of the houses is kept open and used for playgrounds. As nowadays people of such limited means as those who have purchased homes in "Sunnyside" frequently have automobiles, garages are provided on ground set aside elsewhere for this purpose. Naturally the land that is less desirable for homes is chosen for the site of the garages, and thus the aim in this case, as in others, is always to apportion the land among various uses so as to get the

maximum benefit from the whole and the most harmonious and pleasing arrangements.

The common area in the first block was used for wading pools, sand piles, swings and slides for the little children, and basket-ball courts and tennis courts for the older children and adults; but since the construction of this first unit it has been decided to furnish the older people with separate playgrounds, so as to leave the interior of the blocks for the little children. Two objects are accomplished by this arrangement. More space is given to the older people, to whom a distance of a few minutes is immaterial, while at the same time the little children, having the interior of the spaces of the blocks to themselves, may be watched by the mothers, working in the kitchens facing on these interior open spaces. This is a convenience and an advantage which many people with incomes of $10,000 and more in New York and Chicago may well envy.

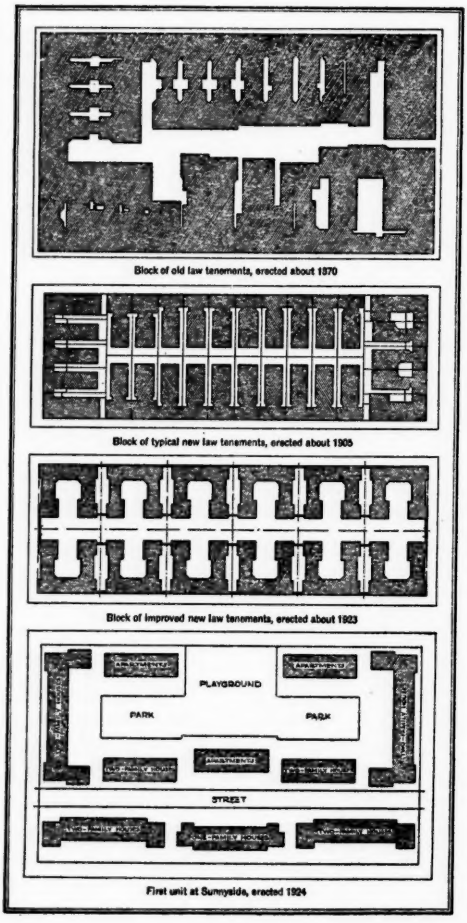
A third item of superiority is the æsthetic appearance of "Sunnyside"—what may be called the amenities of the neighborhood. It will at once occur to the reader that the interior of the blocks must be far more attractive than the interior of most blocks, which are generally unsightly with their garages and other buildings. Similarly, the trees recently planted along the streets will render them more attractive, and there is a general harmony in the facades of the buildings of each block. Variety in the skyline is provided by the grouping of one-family, two-family, and cooperative apartment houses. This variety is a pleasing contrast to the usual monotony of cheap homes. It does add something to the cost, but not a very great deal, and it is more than offset by the economy of large-scale operations or mass production.

Necessarily all purely ornamental features have been avoided. The material used for the buildings is chiefly common brick, but by avoiding extreme monotony the general appearance is pleasing, and the longer one studies "Sunnyside" the more satisfactory is this inexpensive but substantial building material. It has been interesting to the directors to notice that the substantial construction of the houses has so impressed some of the mechanics working on the buildings that they have become purchasers of homes.

### *Cost of Homes*

In view of the practical aims of the corporation it is important to consider the cost of the homes to the purchasers. It is to be noticed that the buildings are sold, "Sunnyside" having as its chief aim to promote home ownership and not tenancy. The board of directors, consisting of very practical men, as well as idealists, has always had in mind to bring home ownership within the reach of those who in New York City seldom aspire to home ownership. The president of the City Housing Corporation, Alexander M. Bing, made a prolonged search for land accessible to the heart of New York City and within the 5-cent fare zone. At the same time it was necessary to get land at as low a price as possible. He was able, going about this object quietly, to buy the 1,100 lots referred to at a very reasonable price. The next thing was to plan out the construction and building operations, so as to obtain the minimum of cost compatible with excellent building material and with excellent construction. Incidentally it may be observed that as "Sunnyside" is within the fire limits of New York City it is necessary to have fire walls and to make the construction,

in general, more expensive than would otherwise be the case, and, in fact, according to Mr. Bing, more expensive than is really necessary. To make home ownership possible it was also necessary to spread the payments over a long period upon the amortization plan. The outcome is that houses can be purchased for monthly payments at somewhat less than rent would ordinarily be. These monthly amortization payments extend over about 22 years, at the end of which time they cease, and the property is entirely paid for. It scarcely needs to be said that it is possible to pay up more quickly if one wishes.


Block of old law tenements, erected about 1870
Block of typical new law tenements, erected about 1905
Block of improved new law tenements, erected about 1923
PLAYGROUND
PARK
PARK
STREET
First unit at Sunnyside, erected 1924

It is desirable that the purchaser should have shown capacity to earn and save. The normal cash payment upon the purchase of a home is 10% of the price. This amount is paid in most cases. In some cases, however, the initial payment is very much less, but in a few cases it is larger, so that the average payment would be not less than 10%. The monthly payment on houses, which includes interest, taxes, insurance, and amortization, varies from $10.50 to $12 a month per room. A four-room apartment costs $6,000; a five-room apartment costs $7,100; and a six-room apartment costs $8,300. Monthly payments in these cases are, for a four-room apartment, $62.10; for a five-room apartment, $73.20; and for a six-room apartment, $85.60. A single-family house of six rooms, on the other hand, sells for $8,750. The cash payment is $875 and the monthly payment per room is a little more than $10.50, or a total of $64.75. A two-family house of eight rooms sells for $11,800. The cash payment is $1,180 and the monthly payment per room is about $11, or a total of $88.38. A three-family house of twelve rooms sells for $17,500. The cash payment is $1,750 and the monthly payment per room is $12, or a total of $132. In the case of two- and three-family houses, arrangements can be made for the purchaser to let the superfluous space, thus making it easier for him to pay for the property.

This permits a small amount of tenancy, but is not undesirable. The percentage is relatively small, and a certain amount of tenancy is in itself desirable because in no community can every one be in a position to make home ownership desirable. The tenant may be, for

example, a young man, still unmarried, who may wish to live in the community and at the same time may in many ways be very helpful to it. On the other hand, the tenancy that does exist is an aid to home ownership. In one case a three-family home was purchased and two apartments were let by the purchaser and the monthly payments thereby reduced to $30.

When "Sunnyside" was first started some people said: "You cannot sell one-family houses in New York City." Fortunately the directors were not discouraged, and several one-family houses were built, but not enough to supply the demand. More were built in the second unit, and the number was so large that they were not all sold at once. The number in each unit of one-, two- and three-family houses and apartment houses is as follows: In the first unit there were 8 one-family houses, 80 two-family houses, and 40 cooperative apartments of six and seven families each, making provision altogether for 128 families. In the second unit there were 78 one-family houses, 68 two-family houses, 48 three-family houses, and 32 cooperative apartments, making provision altogether for 226 families. In the third unit there were 83 one-family houses, 138 two-family houses, and 78 three-family houses, making provision altogether for 299 families.

*Income and Occupation Groups Served*

An analysis of incomes and occupations of 73 purchasers in the first unit shows that 55 out of the 73 have incomes from $1,200 to $3,500, and 18 have incomes over $3,500. We find, under occupations, that the largest group consists of those in building trades, the next largest group being made up of store and office employees. There are 18 tradesmen and 5 chauffeurs, 7 teachers and municipal employees. The corporation makes it possible for all of these to buy pleasant homes, well constructed, sanitary, with provision for playgrounds for the children, as well as for older people; while probably very few would otherwise have become home owners.

*Capitalization and Return*

The corporation is capitalized at $5,000,000, divided into shares of $100 each; and, as already stated, the dividends are limited to 6% per annum, which is, however, not an altogether bad return on an investment so safe that the trustees of educational and benevolent foundations have been willing to buy mortgage bonds. Three per cent is paid semiannually with clock-like regularity, and a surplus has been accumulated amounting to $200,000.

*Future Plans of the Corporation*

"Sunnyside" does not represent fully the ideals of the City Housing Corporation, but rather the best that could be done under conditions which had already been established. The streets had been laid out and accepted by New York City, and the smallness of the area of land placed several restrictions upon possible achievements. The directors of the City Housing Corporation want to carry forward other developments in and about New York and also elsewhere. As soon as "Sunnyside" is completed, or even earlier, if funds are available, the directors hope to buy a larger tract of land where the streets may be laid out according to their own ideas and a more spacious urban settlement provided.

Mr. Bing dreams of a garden city,

using the results of the best experiments in our own and foreign countries; and his associates have every confidence that his dreams are going to become a reality. In thinking about a city within easy reach of New York, he has in mind a city which will have industries to provide employment, and one which will also have stores, and, therefore, will be more nearly self-contained. One idea that has been tentatively discussed is to surround this garden city by a ring of land reserved against building, which is to be used for gardens and general intensive agriculture. In this way it is hoped to keep the city from growing indefinitely.

Mr. Bing looks upon the City Housing Corporation not as a local enterprise, but as national in scope, and the writer entirely agrees with him in this view. It is worth while to furnish 5,000 people with homes, but the City Housing Corporation aspires to do far more than this. The happiness and well-being of 5,000 people are not insignificant, but when it comes to the housing problems of the United States all that can be done by any single corporation is not a drop in the bucket. If, however, the City Housing Corporation is provided with funds to enable it to carry on its work in Chicago and Boston and elsewhere, it will continually gain knowledge and correct conclusions based upon more adequate experience.

### *III. Economics of Plan—Sale at Market Price*

If the general conditions of the housing situation are to be affected by this experiment, prices charged must be market prices. If the corporation is able to build and to sell below prices that are possible to private builders, it will have far less influence on standards of practice than if market prices are maintained. The idea of the present writer is that the City Housing Corporation should be competitive rather than merely philanthropic, and thus help to raise the level of competition. Indeed, it is not clear to what extent it is going to be possible for the City Housing Corporation to sell a better quality of product at much lower prices than the commercial builders who are working for profits. The corporation has some advantages because the officers and directors receive no salaries, and among them are men of experience and gifts to whom the work is a labor of love. Those who are salaried, like the architect and the city planner, are entering into the plans in a most whole-hearted and praiseworthy way and are not measuring their service by what they receive. Very generally, the spirit to do one's best seems to animate all the workers engaged in the construction at "Sunnyside," because all feel that they are doing a worth-while work.

#### *Advantages Accruing to Buyers*

It may be asked, then, what does the purchaser of the home receive if he pays a fair market price? He has, first of all, honest construction and perfectly frank and straightforward treatment. If spaces are left open for parks and playgrounds for the children, for tennis courts, and so forth, then they are going to be kept open just as represented and not be sold when the other lots are gone and land values rise. The purchaser has also the opportunity to spread his payments over a long period of time, making it possible for those who otherwise could not become home owners to acquire homes of their own. The normal period is somewhere around 22 years, as already remarked; but, as also already

stated, it is possible to pay more rapidly, if one is able to do so. The purchaser also has the cooperation, in establishing a community desirable in every way, of the directors, whose aim is to "help self-help" in the aspiration for better things of life. Young as "Sunnyside" is, a real community spirit is being developed, and this has been helped by the city planner and his family who have lived for some time at "Sunnyside."

### *The Problem of Ownership—Leasehold or Purchase*

These policies of planning, prices, financing, and economy are only a few of the many economic problems that constantly arise in such an enterprise. Others that have arisen are equally fundamental in the general problem of adequate housing. These problems are primarily of a practical nature, but it is the belief of the present writer that in solving our practical problems we gain light upon economic theory. In fact, the history of economic thought teaches us that the most worth-while theory has been a by-product of efforts to solve practical every-day social and economic problems.

At the very outset one question that arose was whether or not to sell the land as well as the building on the land. Some of the directors of the corporation were at first inclined to keep the land as the property of the community and to sell only the home on the land. After considerable discussion it was unanimously decided that the man who owns the home should also own the land. If the home owners at "Sunnyside" had been simply leaseholders, they would not have occupied as favorable a position as those living in other neighboring communities. Moreover, though land does not always increase in value, if the buildings only were sold the purchasers would have been asked to take the depreciation in buildings without any hope of a counterbalancing increment in land values. If the value of the land should increase, who would better enjoy this than the owners of the home? Who would be better entitled to it? When the home and site go together the owners have more interest in the community and more inducement to accumulate wealth. Very frequently the man who buys just the home stops his accumulation when it is paid for. If he owns the home and the land both, he will not stop until both are paid for.

In this matter there is a rather extensive experience in other places to draw upon, and this confirms the wisdom of the course taken in "Sunnyside." In Baltimore, where a system of ground rent prevails, it has been felt to be so unfortunate that legislation has been enacted by the State of Maryland to set limits to the length of time for which the leases may be given. It has often been urged that Baltimore has not been so well improved and developed as it would have been if the ground rent had not existed, and if the owners of homes had also owned the ground under the homes. At Cornell University the professors have built homes on land belonging to the University, and the system there has impressed many as undesirable. The late Charles K. Adams, who went from the presidency of Cornell to become president of the University of Wisconsin, opposed the beginning of a similar system at Wisconsin. Having spent many years at Wisconsin, the present writer believes that it is very fortunate that the professors have to buy their land, as well as the building on the land.

This does not exhaust the subject of the freehold and the leasehold by any

means. Just as one should not oppose arbitrarily all tenancy, so one should not oppose arbitrarily all leaseholds. In the case of high-grade business concerns, a leasehold may be very advantageous because these concerns could be expected to take careful account of a diminishing value and to set aside regularly reserves for this as for all other kinds of depreciation. The situation is different for home owners, who under the leasehold system are likely to find their property slipping away from them without any adequate reserves for depreciation and replacement.

### *Speculation*

Another question that arose early at "Sunnyside" concerned speculation. Would not the people simply buy the homes to sell them again at a profit? A proposal was made, as a method of preventing speculation, to put a third mortgage for a period of 15 years upon the homes, this third mortgage being in effect in case the home was sold, but otherwise having no effect and being self-canceling at the end of 15 years. As a result of discussion, the directors resolved to substitute 3 years for 15 as the length of time during which the third mortgage of $1,000 would be a valid claim. Experience seems to demonstrate that the fear of speculation was excessive. Those who buy the homes are carefully selected, and people of that income group especially buy because they want homes. They cannot improve their conditions by going elsewhere. New homes are being continually constructed by the corporation, and these, too, set a limit to the possibilities of speculation. Moreover, a certain amount of mobility is desirable, and those who want to improve housing conditions should not interfere with it. A young man may be living at "Sunnyside" and have an offer of a better position in another city. Certainly the directors would not like to stand in his way, and certainly they ought to rejoice with him if he is able to make a little profit on his sale.

Speculation, however, thrives on unstable values. This point should not be overlooked in planning housing improvements. At "Sunnyside" satisfactory planning has tended to stabilize values. Special mention has already been made of the location of the garages. Similarly, stores have been placed by themselves and properly located. One aim in this policy has been to prevent, as far as possible, the competition among different uses which tends to boost land values. But further experiments, especially on a large scale, will throw more light on this whole subject.

### *Larger Social Purposes of "Sunnyside"*

A summary of the present work of the City Housing Corporation would be incomplete without sketching the broader implications of the experiment. This new and larger purpose appears when one considers the laboratory or scientific connection of "Sunnyside" with the Institute. While the City Housing Corporation is applying and working out better standards and methods of stimulating home ownership, the Institute is investigating as a scientific matter what is being accomplished at "Sunnyside" and in other projects wherever located. The hope is that gradually better standards and methods will be discovered and assembled and that these will guide and stimulate national, and even international, activity in encouraging home ownership. In this sense the City Housing Corporation with its prac-

tical research and the Institute with its broader scientific research have a unity of spirit.

It is evident that both the City Housing Corporation and the Institute start with certain assumptions regarding home ownership, which perhaps should be set forth. The first and most evident is the social importance of home ownership as a basis of good citizenship. The slogan of the United States League of Local Building and Loan Associations is "The American Home—The Safeguard of American Liberties." But regardless of any sentiment attaching to such slogans, there is no question that home ownership is a safeguard against poverty, and it aids thrift and prosperity for the many. Indeed, a home owner is almost invariably a good citizen. In fact, the social importance attached to home ownership is more than an assumption; it is an axiom. On this basis the City Housing Corporation, with the Institute cooperating in its own way, is making a valuable contribution to good citizenship and general well-being.

Nevertheless, with this interest in home ownership goes the recognition of the inevitability of some tenancy in both city and country. To see this one has only to ask, "What would happen if it were not possible to let and hire homes; in other words, if there were no tenancy? Without some tenancy, would there be sufficient mobility of the population to prevent serious economic maladjustments?" In an ideal condition a certain amount of tenancy would exist both in country and in city. The Institute is seeking to find out what is a desirable amount of tenancy, judging from the results in many communities. The City Housing Corporation seeks the same end in a different way by experimenting with home buyers who let a part of the building to help pay for the whole. Likewise since we must have some tenancy, we should strive to make it good tenancy. This brings in the whole question of tenements and the relation of landlord to tenant both in city and country.

When it comes to clearing of slums in great cities we have very complex problems which require special treatment. That is not the chief concern at present.

A somewhat different treatment is required to meet the needs of the so-called white collar, or middle intellectual, classes upon which the progress of civilization especially depends. The condition in which these people find themselves was admirably portrayed, but perhaps a little exaggerated, by Katherine Fullerton Gerould in the *Harper's Monthly Magazine* for February, 1926, in an article entitled "The Plight of the Genteel." The present writer is firmly of the opinion that through concerted action it is possible to help college instructors of various ranks, professional people, generally, and the "genteel," to use Mrs. Gerould's word, to acquire home ownership and to do something to improve the economic position of these classes and to do so without any taint of charity.

Early this year, Governor Smith of New York recommended to the legislature that something be done by the state to aid private agencies to furnish housing for those with small incomes. He suggested that state or municipal credit subsidies be used or that limited dividend companies with powers of condemnation be encouraged. These proposals seemed "startling" and "paternalistic" to some people; to others they were "courageous," but perhaps not altogether wise. They illustrate, however, that there may be many roads to the same goal.

It is all the more necessary, therefore, in evaluating "Sunnyside," for the Institute to study the experience of foreign countries in their efforts to cope with housing problems. Greater reliance has been placed by other nations on public aid of various kinds than in this country, where business traditions are more individualistic. Nevertheless, these older countries may have lessons for us in America. Mere imitation may not be desirable, but that need not stop us from using the experience of foreign countries in shaping American policies according to American peculiarities. The advocates of the Garden City Movement in England, for example, are very generally inclined to favor the leasehold instead of the freehold, so far as the land is concerned. That may be the best possible plan in England, although that is not to be accepted without question. American experience shows that it is possible to unite the ownership of the land to the ownership of the home on the land. The Institute does not adopt this as a creed, but, so far as present researches and the "Sunnyside" experience have gone, this seems to give the best results and to be favorable to a larger accumulation of wealth than would otherwise take place on the part of the ordinary home owner.

### *Aid to Europe from American Experiments*

As we learn from other countries, so it may be possible to be helpful to them in solving their housing problems. In Europe the problem appears to be far more pressing and urgent than in this country, where it is safe to say that there are better homes than in any other country in the world, although much remains to be done. The situation in European countries is in many ways a bad one. Relying upon governmental aid to furnish homes, in very many cases private initiative and enterprise have been checked, while in no case does public activity seem sufficient to meet the situation. In many parts of Europe a kind of vicious circle has been reached in this way, resulting constantly in more and more appeals to government aid, while private activity is pitifully inadequate. If further research by the Institute supports these conclusions, then the policies adopted by the City Housing Corporation will be substantiated and public authorities would do well to take notice of the results.

### *Taxation Problems*

Another angle of the relation between public and private enterprise is found in questions of taxation and rent regulation. Among the researches being conducted by the Institute is that into the whole field of taxation. Is taxation excessive? If so, what should be done about it? New York has experimented with the exemption of certain buildings from taxation for a specified period of years. Has this policy helped? Has it encouraged private builders to furnish a larger supply of low-priced workingmen's homes? There is some difference of opinion about the influence of tax reduction on homes when we consider the long-time effects. There can be no doubt that the temporary remission of taxes on low-priced homes in New York City and in one or two other places in New York State has stimulated building and has been helpful.

The present writer long ago, when a member of the Maryland Tax Commission, recommended a remission of taxes on new homes for a period of three years and is prepared to adhere to that recommendation whenever and

wherever there is a shortage of homes. Generally speaking, it is probably safe to say that economists would be nearly unanimous in opposing a total exemption which would increase the excessive burden of taxes upon other kinds of property, and especially upon the land which is already, in the opinion of most authorities, heavily overtaxed, in relation to other forms of taxable property. A temporary remission does not add to the permanent burdens of taxation of real estate or of other kinds of property, but in so far as it stimulates building it lessens the tax rate in the long run.

Another phase of taxation, which needs attention in an exhaustive treatment of housing, is the desirability of assessing taxes according to the selling values of land. There is some evidence that putting taxation on selling values of land, as we do in this country, tends towards congestion. We can see this in many places where original lots have been divided because the tax on the land became so high. Taxing land on selling values also makes it difficult to maintain playgrounds and golf courses. The suggestion has been made that this situation would be much improved not only in the city, but especially in the country, where farmers are so generally in distress, by making taxes correspond to rental values instead of selling values. Classification of land should also be further considered in this connection.

A collateral phase of the general taxation problem is the casually discussed proposal to exempt from the federal income tax dividends and interest from limited dividend companies, provided these dividends and interest payments do not exceed a certain amount. In the case of the building and loan associations, dividends up to $300 are exempt from the federal income tax. May we go still further and exempt from taxation bonds of limited dividend building corporations as we do in the case of the Federal Land banks? Is it any more important to help men to become farm owners through tax exemption than to help men to become home owners in cities? This is something to be considered very carefully in all its bearings before an answer is to be given. Also in this as in other cases we must ask and try to answer the question: Will we hereby lessen private initiative and effort?

### *Rent Regulation*

The same question needs to be answered when we consider public policies of rent regulation in relation to housing improvement. Rent regulation which has been used to a limited extent in this country, and to a far greater extent in other countries, generally results in a kind of vicious circle. This subject has not been investigated adequately, but there are those who hold that, while present tenants may be favored for the time being, the result is to check private activity, and thus to make the housing more inadequate than it would be otherwise. The experience with rent control in New York, England, and elsewhere, seems to confirm this. Investigations in this field must be carried on further with a perfectly open mind and be governed by the facts of the case.

### *The Elimination of Social Waste*

The discussion of these broader aspects of the City Housing Corporation's experiment does not exhaust the subject by any means. It will suffice, however, to show how the Institute is evaluating this work in its economic

perspective. Clearly the time has come to do something about the great social waste—in money, human energy, human lives, and hopes—that accompanies the unwise use of land. From one point of view this is the problem underlying all the others, and it is a problem that transcends the boundaries of cities.

It is well known—but how often overlooked and how soon forgotten—that thousands of farmers are engaged right now in a hopeless struggle to pay for unwisely chosen farms, just as many urban dwellers are facing losses that aggregate enormous sums because they got on city land developments in an unfortunate way. In the case of some farm owners the struggle is hopeless for a variety of reasons, not the least important of which is that in many instances worthless or rather submarginal land has been bought and the struggle is necessarily foredoomed to failure. Some places in this country can be found where one crop of settlers follows another, which is a process that means not only great losses in terms of dollars but also countless human tragedies.

Similarly, in the cities, many home-seekers buy land at boom prices or in regions remote from the city's center only to find that the hoped-for development does not take place. Only those who are familiar with what is going on throughout the country realize the huge social losses in money and in thwarted hopes of those families who fruitlessly made great sacrifices to acquire a longed-for home.

As the Institute observes this process of social waste, it becomes more and more clear that the City Housing Corporation can do and is doing an almost limitless amount of good in establishing better standards of urban land development. Likewise the Institute, by studying "Sunnyside" in relation to other similar projects, can do much in guiding development and fighting frauds. The work to be done is not merely in fighting frauds but in correcting ignorance and letting light into dark places. Considerations such as these add social significance to the economic significance of the City Housing Corporation's experiment.

### *Methods That Have Been Tested and Proved Sound*

Purely from the standpoint of economic science, it may be asked: What does the Institute conclude from the development of "Sunnyside" thus far? What economic standards and methods have been tested and found sound? It is, to be sure, very early to draw conclusions, but the present writer believes the following statement is at least highly probable: (1) Within limitations set by the characteristics of the available land area, it is economically possible for private enterprise in New York City to furnish "decent" homes to people of small means; (2) the physical and æsthetic standards of such homes can be raised by careful planning and mass production while purchase prices are kept reasonable; (3) financing of home acquisition by the amortization plan can safely be spread over 22 years without endangering regular, though limited, dividends; (4) speculation may be adequately checked by using the device of a three-year, self-canceling third mortgage of $1,000; (5) a certain amount of tenancy is indispensable as an additional incentive to ownership; (6) limitation of dividends to 6% does not necessarily prevent the accumulation of a surplus or check the inflow of private capital; (7) private enterprise can improve standards without sacrificing reasonable profits, without sweeping

governmental aid or subsidy, and without demoralizing the housing market.

These methods and standards will be tested further as development of "Sunnyside" goes on and as similar experiments are started in other localities. So far as present experience goes in the vicinity of New York, the above conclusions seem warranted by the facts. The present writer believes that these results have immense significance, both economically and socially, to private builders and public officials, and to all thoughtful citizens interested in social progress and the enrichment of economic science.

# IMPROVEMENTS IN THE MECHANISM OF PUBLIC UTILITY VALUATION

*By* WILLIAM L. RANSOM

IN the January issue of THE JOURNAL, I pointed out some of the practical considerations which, logically or illogically, have led to the concept that the owners of the private property devoted to public service enterprises may not be denied an opportunity to earn an adequate return upon a value which fairly reflects "construction costs, conditions, wages, and prices" at the time of an attempted rate regulation. I tried to show that about as many difficulties and complications inhere in valuation and in rate revision under an "investment" theory as under the "present-value" concept, and that there can be no warrant for an assumption that all valuation troubles would be over if the "investment" theory were adopted. I also suggested for consideration that valuation and revaluation are not necessary steps in rate-making or even in rate revision; that the occasion for the reascertainment of the value of the property arises only when it becomes necessary to inquire whether regulation has exceeded its constitutional jurisdiction by trying to force rates below the limits of a fair return upon the property; and that with reasonable rate-making and a proper concept of what are reasonable rates, a valuation reflecting a price level would serve for a substantial period of time, with such rate revisions meanwhile as are required by substantial changes in operating costs.

In the present article, it is my endeavor to indicate some of the improvements, in procedure and in point of view, which may be desirable in this field of valuation.

The past six or seven years have brought a sharp and sudden challenge of the adequacy and suitability of the machinery and procedure set up for the determination of the value of private property taken for public uses. Down to about ten years ago, the great development of the railroad, gas, electric light, power, street railway, and other public service industries, had taken place during a period of *declining* costs of operation per unit of service rendered. The *units of operation* were being enlarged and improved; the *prices* of many basic materials were decreasing or stationary; the *volume of service* rendered was increasing rapidly; the *cost per unit of service rendered* (for instance, per passenger, per thousand cubic feet of gas sold, per kilowatt-hour of electricity, and so forth) was declining. During this period, an elaborate mechanism, administrative and quasi-judicial in scope but closely identified with the policy-determining branches of government, was set up in Washington and in nearly all of the states, under the pressure of a public opinion which apparently sought to revise public utility rates downward, at least as fast as decreased costs permitted, within the limits of constitutional right.

### *Ease of Downward Rate Revisions*

As human institutions go, this mechanism of rate revision *downward* proved

suitable and effective. Whatever may be the *lag* and the impediments in rate revision *upward,* few serious difficulties developed in *reducing* rates, usually in advance of actual reductions in operating costs, to at least the full extent of the anticipated economies.

In a period of *declining* costs, valuations were not usually a very essential part of the processes of rate reductions. For example, the need for the inventory and appraisal of property, to ascertain a *reproduction* cost to be contrasted with *original* cost, did not ordinarily arise. Rate reductions were commonly sought on grounds of decreased unit costs of operation. As to the so-called "rate base," it was generally realized, by all concerned, that an estimated reproduction cost might be *somewhat less* than actual original cost plus net additions to actual cost. Under such circumstances, no one was greatly aggrieved if the book costs were accepted and a moderate or minimum rate of return allowed thereon.

Especially in litigation as to railroad rates, proof of replacement cost was resorted to, as I pointed out in my previous article, by those who sought to deny the corporation a return upon the greater sum representing actual original cost. More commonly, however, an equivalent result, *in dollars,* was accomplished, with some wear and tear on the law and the facts, by narrowing the percentage of return or by pruning the actual investment to the desired *residuum,* through the concept of allowing a return only upon *"prudent* investment." Of course, it was rarely deemed "prudent" that any property should originally have cost more than it could be reproduced for at the time of inquiry; and it later became "prudent," at least in a political sense, to allow a return only upon sums less than either the original cost or the reproduction cost. As long as the utility managers could keep lowering their unit costs of service, however, valuation proceedings could be handled with considerable informality or dispensed with altogether. They played no important or essential part in effecting the rate changes desired by the public and welcomed or acquiesced in by the owners of the properties.

### *Difficulty of Rate Revisions Upward*

Since about 1915, American industry has been in the throes of a period of rising costs and a price level which seems to have become practically fixed at a point far above pre-war standards. In many instances, the mechanism which had functioned well in forcing rates downward failed dismally, and proved for a long time virtually powerless, to raise rates flexibly so as to keep revenues equal to expenses and yield the investors a fair return upon the capital employed.

The same political forces which long had exerted pressure for rate reductions to reflect decreased costs, often stood steadfast against rate increases to reflect year after year of sharply increased operating costs. Rate reductions had generally been acquiesced in, by all concerned; rate *increases* had often to be fought for and forced, against resolute and bitter opposition. *That attitude forced valuations;* the amount and present value of the property had to be ascertained and proved in evidence, over the most stubborn opposition, before the commissions and in the courts. Although the trend of costs was of common cognizance, and the need for relief was great, weary months and often years were required to be spent in solemnly proving facts fairly known to

everybody, as to the increased costs of building materials and the increased wage rates of labor.

The expenditure of hundreds of thousands and literally millions of dollars, in a single case, for the work of appraisal engineers; the enforced taking of tens of thousands of pages of typewritten testimony, later to be printed; the nerve-wracking contest for methods of demonstration and proof which might bring relief before too late; the waste of the energies, health, and even the lives, of company executives and public officials, under the strain of such processes of proof, are some of the factors which emphasized, perhaps unduly in the instances to which I refer, that the machinery for ascertaining the value of property devoted to public uses may work rather ponderously and unsuitably in a time of great need, and that something remains to be worked out on the procedural side, by the courts, commissions, and legislative bodies.

I do not wish to convey any false impression about what has taken place; there has probably been a tendency to overemphasize what transpired in some instances and to say little about the way in which by far the greater number of rate revisions has been handled, even during the past decade. Especially in 1917 and 1918, innumerable increases in rates were sanctioned by the state commissions, and railroad rates were increased throughout the country by the Interstate Commerce Commission, without anything which could be called a "valuation." The objective was generally to keep operating revenue sufficient to pay operating expenses, without much attention to return, if any. It probably is not too much to say that, as a general rule, in the years since the war, the regulatory commissions have come to realize that utility rates should be increased or decreased flexibly and with reasonable promptness, according as may be necessary in order to keep them within the requirements of reasonableness and to remove limitations which would leave them insufficient to pay operating expenses and a reasonable return upon the useful property. There is far from a realization of the elements and bases of *reasonableness* in the prices charged for public utility service; there is too commonly an adherence to the "cost plus" theory of rates—a disposition to keep rates narrowly on the border-line of confiscation, by seeing to it that rates do not greatly exceed the limit below which they cannot go without inflicting confiscation. At the same time, it should be said that the regulatory commissioners, and other public officials, have generally come to recognize that rates must rise or fall, to such extent as may be necessary to conform to the requirements of adequacy and reasonableness in the legal sense.

As to the mechanism of rate regulation, however, it remains true that the way of handling promptly and justly the ascertainment of the value of private property engaged in public service has not yet been perfected. The obstacle is not surmounted by transferring to the federal or state courts the task of valuing the property, either in the first instance or for a second time upon review. The problem remains, and the difficulty seems to me partly one of procedure and partly one of point of view.

### *The "Left Hand" Should Know and Respect "What the Right Hand Doeth"*

If the processes of regulation and judicial review are to afford prompt and

real protection alike to the public which uses public utility service and to the public which has become the real owner of the properties necessary for furnishing that service, the courts and commissions need to enforce a more rigorous estoppel against official representatives who try to repudiate and avoid the consequences of the administrative action of their own or other state departments. May I refer to a few instances which have come under my personal observation?

The city and the state of New York value annually all of the land used for public utility purposes within the city of New York. They employ, for this purpose, men of real estate experience, who are chosen by civil service examinations as to their qualifications. These officials make assessments, upon their oaths, and state annually the sums for which, in their judgment, the respective parcels of land would sell if wholly unimproved. Upon the land values so determined and assessed, the city and state require the corporate owners to pay taxes at the rate fixed from year to year.

I am, of course, aware that, in many or most states, some of the elements of the property of a going enterprise are not listed, valued, and assessed for purposes of taxation; also, that in some localities, land and other property are not assessed at full value but only at some percentage thereof that is recognized by law or customary practice. Therefore, I fully recognize the soundness of the rule of the *Minnesota Rate Cases*[1] and other decisions, that the record and amount of tax assessments may not, against the utility and over its objection, be received in evidence as probative of the *full* value of the corporate property, in the absence of proof that such assessment was competently made upon a basis reflecting full value. In other words, due process does not permit the public departments to prove in evidence, *in their own behalf*, their own official determinations of value, without giving the adverse party an opportunity to cross-examine as to their competence and soundness. But should the public departments be permitted to disavow their own determinations of value, when offered in evidence *against themselves?*

When I offered, in a local rate case a few years ago, to stipulate with the corporation counsel and the attorney-general that the value of the company's land was *at least* as much as the sum at which it had been valued by the city and state, the offer was spurned as preposterous; and when I called attention to the statutory requirement that the land be assessed at its market value, and then summoned to the stand as witnesses the commissioners who made the assessments and tried to prove the market values they had placed on the land for tax purposes, the legal advisers of the state and municipal taxing authorities fought bitterly to exclude the testimony and establish a lower value for the company's land. The suggestion was even made, in all seriousness, that these civil service evaluators, chosen in part for real estate experience, were not qualified to form and express an opinion as to the market value of the land.

### *Assessment for Tax Purposes at Values Higher Than Those Opposed and Fixed for Rate Purposes*

About a year ago, in another rate suit in a federal court, on a sharply contested question as to the present

[1] 230 U. S. 352.

market value of various parcels of unimproved land, the utility called to the stand two real estate men of outstanding ability and reputation, each of whom placed values upon each of the parcels. One of these experts specializes in conservative advice as to values for purposes of mortgage loans; the other gives cheering advice to a great sales organization. Perhaps naturally, these two experts varied somewhat in their estimates of the market values of many of the parcels; the figures of one were generally higher than those of the other. The corporation counsel, acting in behalf of the attorney-general of the state, also called to the stand two well-known appraisers in the regular employ of the city, each of whom testified under oath to values very much lower than had been attested by either of the company witnesses.

The company's counsel, of course, argued staunchly for the figures submitted by the two witnesses it had called to the stand, while counsel for the city, the state, and the commission contended that they both were too high and that only the figures sworn to by the city's experts were worthy of anybody's credence. Up to this point, the developments were those naturally to be expected in trying to ascertain the present market value of land by a battle of experts.

When the court came to review the testimony, it naturally went through all of the figures submitted as to each parcel. In no instance, I think, was a present value found in excess of the *lower* figure presented in behalf of the company, and as to some parcels *both* figures presented in behalf of the company were disregarded and lower figures adopted, approximating those of the city's witnesses. The result was that *for rate purposes,* the vigorous contentions of the representatives of the city and state were sustained, to the extent that the lower of the two figures was generally adopted, but in some instances the land was valued at amounts *less* than had been testified to by *either* witness for the company.

Nevertheless, a few months later, when the city had to value certain of these parcels *for tax purposes,* did it adopt the figures testified to by its own experts? Did it adopt the *lower* of the two figures testified to by the company's experts? Or the value placed upon such land *for rate purposes?* No such consistent standard was recognized; in the case of a substantial number of parcels, the city proceeded to forget the contentions of its counsel and the oaths of its appraisers, and adopted substantially the *higher* figures that had been presented in behalf of the company, so that the parcels were assessed *higher for tax purposes than the court was willing to value them for rate purposes!* Small wonder that the gas-rate in New York City is 13 cents per thousand cubic feet higher than it would be, but for the taxes imposed by the city and other taxing authorities!

To me it seems a reasonable proposition, unless governmental agencies have lost their sense of fair play as well as their sense of humor, that if, for example, the government requires a utility to pay taxes on a given *quantum* of property value, it should promptly and at all hazards cease from denying to the company's investors an opportunity to charge rates yielding an adequate return on *at least* that *quantum* of property. Should not the spectacle be ended of *one set* of government officials trying to establish the highest possible value for the company's prop-

erty as that on which the company should pay taxes, and *another set* of officials trying to prove that the same property has little or no value at all in a rate proceeding, and *both* sets of officials, and several others, trying to prevent the company from earning anything at all on either the highest or the lowest value claimed by any of the public authorities?

### *Giving Full Faith and Credit to Commission Findings*

A few years ago a great modern gas plant was erected in one of the boroughs of New York City. Temporary obligations were issued to finance the construction work, and when the project was completed, application was made to the regulatory authority to issue bonds to capitalize this addition to capital. The work had been done and the plant built virtually under the eyes of the regulatory body. Minute and complete accounts had been kept; the properties and equipment installed had been inventoried; the vouchers and inspectors' certificates had been arranged to facilitate the work of checking. When the application for the bond issue was presented to the commission, the accountants and engineers examined and verified the accounts and supporting vouchers, checked upward of 75% of the inventoried items, selected at random, and reported to the commission that the moneys had been actually and properly spent and that the resultant properties had been acquired and were in use. Accordingly the commission authorized the issuance of the bonds.

Five years later there was need to prove in court the property acquired at the time the plant was built and its cost to the company. Its counsel offered in evidence the action of the commission, its order stating the details of the capital expenditure approved, and its opinion showing the results of the checking and verifications by the commission's accountants and engineers. Did the attorney-general, the corporation counsel, or even the counsel for the commission then in office, recognize that weight or controlling effect should be given to this deliberate action of the state regulatory authority five years before? Not at all. They strenuously objected to its being received in evidence, and forced the company to spend time and money in submitting further proof of facts not fairly open to contest from any public representatives.

The public service commission of one of our great middle-western states very solemnly determined that virtually all of the property operated by a public utility under its jurisdiction was used and useful; that the company was entitled to a substantial allowance for its going value and water-rights; and that the value of its property was at least a stated number of dollars. On the basis of property valuation thus established, the commission authorized the company to issue and sell securities. Wages and prices advanced steadily for six or seven months; new properties were added, and then the commission had occasion to make a new valuation. The highest court of the state had meanwhile determined that public utilities operating in that state were entitled to earn a fair return upon the present value of their properties, including going value, and that wages and prices must be given effect in the finding of present value. Although the commission reiterated its previous ruling as to the property on which a return was to be allowed, it fixed a value very much

smaller than it had before, despite the advance in wages and prices. When this unexplained decrease was attacked in the courts, counsel for the state and city argued in the Federal Courts that the "rate base" should be only original cost less accrued depreciation; that no allowance should have been made for going value or water-rights, and that a large part of the operating property should be held not useful in the public service.

In another recent instance in another state, where the commission had just held a certain company entitled to earn an 8% return upon all of its physical property, including about $300,000 for working capital, counsel for the commission attacked in court the usefulness of more than half of the parcels of real property, contended that less than $100,000 should be allowed for working capital, and that less than 6% was a sufficient rate of return upon original cost less "accrued theoretical depreciation."

I might cite many other instances of failure on the part of public authorities, in their capacities as litigants or as regulators, to recognize the weight which must be given to official action of the regulatory tribunal and to judicial determinations to which it and other public officers are parties, if there is to be any method at hand for dealing with rate and valuation questions within reasonable limits of time and expenditure.

For example: The commission makes a finding that a company's investment in its useful property, as of a given date, is at least a sum stated; yet the commission's counsel joins in resisting strenuously the receipt of such finding in evidence in court, claiming that it is no evidence that such property was or is useful or that the investment therein was at least the sum found by the commission.

Again: The city, the state, and the commission, all are parties to a suit brought by or against a public utility company as to its rates and properties. Each party to the suit adduces such evidence as it sees fit; hundreds of thousands of dollars and many months are spent in litigating the properties, their useful character, their original cost, and their reproduction cost. All of these matters, and many others, are finally determined by the findings and judgment of the court, duly affirmed upon appeal. Nevertheless, the city, the state, and the commission, through their counsel, persistently refuse to recognize these findings as a determination of these matters so expensively litigated, and strive with might and main to exclude the judicial findings from any force and effect and to compel complete relitigation of the same questions, every time they become pertinent to any issue, in court or before the commission.

I have cited these instances, not in any criticism at all of the city or state officials or the commission plan of regulation, because I believe in commission regulation, and the men who have done these incongruous things are friends for whom I have a real respect. They have done what they sincerely believe is their public duty, by way of putting every public utility company to its proofs; and I have no disposition to say they have not done their duty, according to present concepts. I am only calling attention to the fact that the new regulatory machinery still creaks and lumbers, and that there is a lack of coordination somewhere. The fault seems to me to lie in the failure of our regulatory and judicial system to recog-

nize as yet the meaning of the new machinery which has been set up and the recognition which must be given to its decisions and its action. What a regulatory tribunal determines and recommends must be given weight, *in behalf* of a public utility company, no less than *against* it; such determinations must be given ready and unhesitant effect in the courts; and short shrift should be given to other representatives of the legislative power of the state in trying to repudiate them.

*Book Records as Evidence of Fact*

Of somewhat similar purport is the issue regarding the weight to be given to the books of account and underlying records of regulated utilities, as a mode of proof of facts pertinent to their operations and properties. The state subjects utility finances and operations to constant and inquisitorial supervision and analysis, through prescribing a standardized system of accounts; through compelling periodic reports under oath and penalties; through checking and verifying all accounts and entries to whatever extent is desired by the commission, including the checking of *all* vouchers and expenditures for capital additions and withdrawals, and the checking of any other items the commission's staff of engineers and accountants desire.

All this, and more, has been visited upon the companies by the regulatory plan, as a part of the machinery for enabling the public authorities to enforce rigorously the "cost plus" theory of reasonableness in rates and at the same time to avoid inflicting actual confiscation. The financial data thus reported and checked under commission supervision are compiled and widely published by both governmental and private agencies, and form the basis on which the investment of hundreds of millions of dollars annually is made by the people of America in its public service enterprises. Every one who knows anything about such matters knows that the operations and financial transactions of the companies are honestly, faithfully, and reliably reported, under the accounting system and supervision of the commissions, and could not be handled in any other way. If all this supervision, checking, and the system of uniform reporting under oath do not produce reliable records of the actual transactions of the companies, then the federal and state governments are guilty of most flagrant imposition upon the taxpayers and investors. But when it was sought to use these records and these resultant data, *in behalf of the companies,* as devices for shortening and simplifying the processes of proof and saving the time of company representatives and public officers and the money of taxpayers and consumers, most of the public representatives resisted and obstructed any such reasonable course. They fought it as hard as they could all the way to the highest state courts and the United States Supreme Court. They even demanded that judgments be reversed because of the receipt in evidence of books of accounts kept under such public supervision and the receipt of proof that the commission's engineers and accountants had continuous access to the properties and vouchers for the purpose of checking all property additions and anything else the officials saw fit.

Fortunately, this "negative" and obstructive attitude has generally been repudiated by the courts, yet its persistent renewal serves still to add much

to the time and expense of proving the facts which the commission contemporaneously verified.

### *Difficulties Augmented by Burden of Proof*

From my experience in several capacities, it has seemed to me that the difficulties and burdens of the valuing of public utility properties have been intensified, without clearly commensurate advantages to any one, by the well-intentioned efforts of legislatures to create obstacles to the increasing of rates and to the overturning of orders for rate reductions. The doctrine of burden of proof beyond a reasonable doubt was brought into this field by the courts, in first instance, as a restraint upon judicial interference with legislative acts as to rates. This barrier to judicial nullification of legislative reductions was introduced at a time when the burden of proof related more to the *margin of return* upon the *amount* of property (which then could usually be ascertained with comparative ease), than it did to the *value* of the property by which the margin of return might be gaged. The utility which sought relief from statutory rates had to prove, by a clear preponderance of the evidence and beyond a fair-minded doubt, that the earnings under the rates would fail of adequacy and fail by such a substantial margin as to leave no fair prospect that the legislative prophesy had been erroneous.

Since that time, the tendency of legislative policy has been to "shift" both the burden of proceeding and the burden of proof, so as not only to call upon the utility to proceed in first instance to justify the reasonableness of any *increased* rates sought by it, but also so as to compel the utility to proceed to defend and justify the reasonableness of its *existing* rates, even though they have been long in effect and may even have been fixed by the public authorities themselves.

This legislative tampering with the incidence of the burden of proof has tended to put a premium upon the filing of unsupported complaints by public authorities, and also to add to the difficulties of proof. In the city of New York, in the summer of 1923, the municipal administration then in office filed a complaint, in general terms, against the rates charged by a utility to its private consumers (other than the city). Substantially no facts were, or could have been, alleged to show that the rates complained of yielded to the company more than a reasonable return upon *either* the present value of the useful property or the amount of the investment therein.

Hearings have gone forward as diligently as the preparation and proof of the voluminous inventories and appraisals permitted. The municipal administration which filed the complaint has never called to the stand a witness or offered in evidence an exhibit, to sustain its complaint. It never will do so, because it went out of office a year and a half after the complaint was filed. Yet the company has so far spent over $3,500,000 (exclusive of counsel fees) in defending *existing rates,* which the company had voluntarily reduced below *maxima* fixed by the commission itself; and all this expenditure of money and energy has had to take place, before anyone took the stand to say a word under oath against these rates. Moreover, this tremendous outlay has only been to prove what everybody concerned knows perfectly well; namely, that the rates which the city sought to

reduce have yielded, and still yield, less than 6% return upon the investment.

When the complainants against existing rates were compelled to proceed with the proof of their charges of unreasonableness, they commonly were able to, and did, simplify their processes of proof by availing themselves of the actions and records of the utility, and even of public officials, as having probative force *against* the utility. For illustration: The very detailed annual and other reports, made by the utility, under oath of its officers, to the regulatory commission or to the taxing authorities, could be offered in evidence by the complainants or "studies" and exhibits prepared therefrom along lines consonant with the complainant's theories, on the common-law ground that such reports were "admissions against interest," on the part of the utility concerned. In this way, a large part of the facts involved in a rate litigation was quickly and compactly proved, by the complainants, in a manner and from sources which obviated controversy as to much except the really contested items.

With the statutory change in the position of the burden of proof, however, such actions, reports, and records are not generally deemed available, *in behalf of the utility,* to fulfil its burden of proof and prove generally its case. They are objected to as "self-serving declarations," and this objection is commonly sustained. Facts which formerly were proved with expedition and in a manner which virtually removed all except the controverted matters from the realm of disputation as to modes of proof, now have to be dealt with laboriously and at great diversion of time and money. Advantage has thus been taken of the "shifting" of the burden of proceeding and proof, to increase very greatly the labor and expense of proving the utility's case in rate and valuation proceedings. This has been accomplished, where it has been sought, principally (1) by taking a negative attitude toward all or most of the evidence offered in behalf of the utilities; (2) by unlimited and largely inconsequential cross-examination; and (3) by suspicion and indiscriminate vehemence toward every offer of proof in justification of the existing rates.

### *Possible Ways of Narrowing the Controverted Issues*

There are important features of every rate case which ought not be controversial, for example: (1) the *quantum* of property, either inventoried in detail or entered in the fixed capital accounts in dollars; and (2) the actual operating expenditures and revenues during a given elapsed period. Inventories might well, in many or most instances, be made the joint work of interested parties and at joint expense, and statements of actual operating expenses ought to be produced readily, by either the public utility or by the commission. There rarely is *real* controversy as to what physical property a public utility actually has and uses; whatever disagreement there is could better be settled by conference of engineers or counsel, than by protracted testimony. Likewise, there are few items of operating expenses that are really open to controversy; the Uniform System of Accounts precludes any general onslaught on the reported and supervised costs; the issues might far better be narrowed speedily to the actual points of disagreement. Schedules of inventories and of operating expenses, revenues, fixed capital accounts,

and so forth, could be filed with the commission or court and questioned only to the extent that exceptions thereto have been specifically taken, and as to such exceptions, the burden of proof ought to be upon the excepting party, as in most forms of litigation.

An analogous plan of procedure could be worked out before commissions, under legislative provisions, and could also be worked out in court actions by rule. Illustrations of such a plan are furnished even in the very technical practice in New York State. Section 255-*a* of the Civil Practice Act provides that in any action involving the sale and delivery of goods, the plaintiff may, in a schedule attached to and forming part of his verified complaint, set forth and number the items of his claim and the reasonable value or agreed price of each. Thereupon the defendant by his verified answer must indicate specifically the items, if any, which he disputes in respect of delivery, reasonable value, or agreed price. Rule 174 of the New York Rules of Civil Practice relating to references on accounts, provides that all parties accounting before a referee shall bring in their accounts in the form of debtor and creditor, and verified by the accounting party, and the contest of the account shall be confined to the items or matters to which objections have been filed.

Confiscation cases, as I pointed out in my prior article, are in a real sense akin to condemnation cases. In condemnation cases, the burden rests upon the government of showing the amount of compensation which would be just for the property taken. In practice, however, the owner shares the onus with the government of proving to the court the just compensation to which he is entitled for the property taken. In confiscation cases, as well as in rate proceedings before the commission, there needs to be set up by the courts and the commissions, a more efficient method of procedure by which the time of the court and litigants and the cost to the litigants of establishing and determining the facts could be saved. A start needs to be made. There have been a considerable number of these rate cases, and the administration of justice would be promoted if, before the commissions, inventories, and, to such extent as proves practicable in the particular case, the pricing of the inventoried properties, might be handled jointly among the public utilities, the commissions, and other interested parties designated by the commission, who would share the labor, responsibility, and cost, and if, before the courts, rules of procedure were adopted by which inventories and schedules of actual operations and of fixed capital charges would be litigated only to the extent that exception to them was filed and the excepting party sustained the exceptions.

### *Need for a More Simplified and Direct Procedure*

It will be noted that this article offers no ready or complete remedy for the difficulties which are sometimes encountered in this field. I know of no such formula of solution, and would be surprised if any could be developed. The public service companies comprise many of the major industries of America. Theirs is a far-flung line of industrial advance. They serve directly the daily needs of practically every citizen. They furnish the indispensable services of power, heat, light, communication, and transportation. The

most deep-seated of competitive forces are to be found in this field; the strongest considerations of self-interest and community rivalry are to be found on every hand. The problems which occur and recur in this close and constant economic relationship are always difficult and often delicate. They call for accommodation and adjustment, for reasonableness and forbearance, for common sense and patient realization that there are few panaceas. Those who would put the public service in a strait-jacket and compute all rates on a "cash-register," have not begun to encompass the situation, as I see it. In other fields of industrial activity, the legislatures and courts have evolved no simple, empirical codes which have taken the human elements out of economic relationships. In other fields of judicial arbitrament, the law has evolved no formulae for computing damages, value, the extent and worth of tangible elements, the extent of intangible invasions of private rights. In a multitude of relationships, the law still permits fallible jurors and fallible judges to reach fallible conclusions, concerning the most complex of controversies concerning private property. Why the clamor for a mechanistic standardization in the utility field, which perhaps needs most to emphasize reasonableness, progress, and fair play?

Changes in the point of view of public representatives and company officials may be at least as helpful and necessary as changes in formal procedure. Given a mutual desire to ascertain the facts and a mutual willingness to abide by their consequences, direct and businesslike ways of finding them out must be within the range of the creative genius of the public officers, company executives, and counsel.

In many communities, progress has been made along certain lines whereby the amount and present value of public service properties are ascertained amicably and sensibly, by conference committees of competent and public-minded experts, who report directly to public officers and company executives.

With the bonds and preferred stocks of public utility companies held by great numbers of men and women who also are customers or employees of the companies, and with all of the data collected by the regulatory and taxing authorities available as a starting point for consideration, it does not seem too much to hope that some day a more equable spirit will control the ascertainment of values and that millions of dollars of the money of taxpayers and consumers need not be wasted annually, in formal proof of facts which business men commonly require their experts to establish to their satisfaction in a few hours or even a few minutes.

Taxpayers and consumers are the real parties in interest, and there must be some similar way out, in fairness and common sense, for regulatory commissions, municipal officials, and company executives. I am of the present and personal opinion that a good deal of the "short-cuts" and the progress, in valuation matters, during the years immediately ahead, may be found along above-indicated lines of fair play, estoppel, and mutual consideration, rather than in the definite discarding of the "present value" concept or in drastic changing of the fundamental status of the private property engaged in public-service enterprises. Procedural improvement, as to the modes of proving facts pertinent to business transactions, may reasonably be expected and should be insisted upon, in this as in other branches of the law.

# THE PROBLEM OF THE ORIGIN OF SERFDOM IN THE ROMAN EMPIRE

*By* MICHAEL ROSTOVTZEFF

IN a periodical devoted to the land question in general, both to the actual status of the problem and to its history, nobody would be surprised to find an article dealing with the problem of serfdom. The colonate was the leading form of land tenure for centuries both in Europe and in the Near East; and some parts of Europe became rid of it quite recently. The colonate, in a form modified by socialism, might come up again. Who knows? We saw a beginning of it in Bolshevik Russia, in the period of the militant communism. I have dealt with the question of the Roman colonate repeatedly: in many articles, in my German book *Studien zur Geschichte des römischen Kolonats,* and recently in my *Social and Economic History of the Roman Empire.* Since the question has lately been taken up again by some American scholars,[1] and a solution was suggested which is not based on facts and does not take into account the historical evolution and which, therefore, I must reject, I find it appropriate briefly to state my views on the question again. The treatment of the question in this article is historical, and so it must be in all the books and articles devoted to this problem.

## *I. Serfdom in the Orient and Greece*

Serfdom is an institution of social and economic life which was widely spread over Europe in a not very remote past, and still persists both in the Orient and, in survivals, in some parts of eastern Europe, especially in Russia. It assumes various forms in various periods and countries, but its main aspect remains invariable. By serfdom is meant the situation of a person who is personally and legally free but is tied to his place of residence and to his work, a bondage which is recognized and protected by the state. In agricultural life the serf is not the owner of his land, and though bound to the parcel of land which he is tilling and to his place of residence, he might be deprived of this parcel by the will of his landlord, whoever he might be. In industry, serfdom appears more rarely but has the same peculiar features. The serf does not own his implements and his house, and is bound to his work.

From the earliest times of which we have historical records, that is, since the beginnings of historical life, we meet serfdom as a recognized institution all over the civilized world. It is the base of the economic and political structure of many an Oriental monarchy (the best known is Egypt); it appears as an institution familiar to the Oriental and Greek city-state (Carthage, Sparta, Thessaly, the cities of the island of Crete, some Greek cities of Asia Minor); and it is not unknown to some tribal states, for instance, the Celtic and the Illyrian states. Of the origin of these various forms of serfdom we know very little, and what we are supposed to know and what is generally

[1] Simkhovitch, in *Political Science Quarterly,* Vol. XXXI, 1916, pp. 201 ff.; and his pupil, R. Clausing, *The Roman Colonate,* 1925.

taught is mere guesswork. It seems as if serfdom in the Oriental monarchy was the natural consequence of the peculiar social and political conditions which arose both in Egypt and Babylonia out of the necessity of a strict organization of agricultural labor for the maintenance and development of the prosperity of the country. State and religion are inseparable in the Oriental state, the king being the representative of the God on earth; and, therefore, the institution of serfdom ultimately expresses the idea of the supreme rule of the God over man. This primarily religious aspect of serfdom, which implies the notion of the ownership by God of both the land and those who live on the land and who till it, is most evident in many, though not in all, temple- or priest-states where religious and political organization never become differentiated. Such states existed in rather large numbers all over the Orient until very late times. Sometimes, though incorporated in a state of a different secular form, they nevertheless retained their peculiar social and economic organization (for instance, the temple of Comana in the Pontus in the time of Strabo and many other temples in Asia Minor described by the same author).

In the Oriental and Greek city-states the origin of serfdom is equally unknown. It seems as if in Carthage serfdom, as far as it developed there, was based on the conquest of the native population by the Phenician conquerors. And this is the prevailing theory by which the origin of serfdom, as it existed in early times all over Greece and Greek Asia Minor, is commonly explained. The institution as such is comparatively well known since it persisted until late Hellenistic times in Sparta, in Thessaly, in Crete, and in some cities of Asia Minor and South Russia. However, some scholars deny such an origin of serfdom in the Greek city-states and are inclined to ascribe its evolution to the gradual enslavement of the poor by the rich, a theory which to my mind is untenable.

Equally unknown is the origin of serfdom in the tribal states. Our historical tradition, which is not untrustworthy, ascribes the existence of serfdom in the Illyrian states of Dalmatia to the conquest of early Thracian inhabitants by Illyrians. The same origin seems to be natural in Gaul where the Celts appeared as conquerors comparatively late, not before the sixth century, B.C. But everything in this question of origins is still darkness.

However, serfdom persisted in the ancient world for centuries and centuries. In the Orient it was inherited, after the conquest of the Persian Empire by Alexander the Great, by the Hellenistic monarchs, and kept jealously by some of them, especially by the Ptolemies in Egypt. In Greece it lingered on in some of the Greek city-states. And yet in the enlightened atmosphere of the Greek life of the Hellenistic period serfdom as an institution could not prosper and could not remain unchanged. In most of the city-states it was eliminated in one way or another and replaced by private property or transformed into relations of temporary short- or long-term leases. Instances are the activity of the Spartan kings Agis and Cleomenes and the freedom given to serfs in the city of Heraclea on the Pontus. Even in most of the temple-states serfdom vanished, since many of the temples and temple territories were transformed by the Hellenistic rulers into cities and city territories. In Asia Minor and in Syria, serfdom persisted almost exclusively on the land owned by some

temples and on the large estates of the kings, which were partly given away by them to their officers and officials. But even here it was regulated and modified, and subjected to some changes which restricted the rights of the landowners (including the state, that is, the king) and created some legal rights of the serfs.

Best known is serfdom in its modern Hellenistic forms in Egypt. As far as land cultivation goes, the original serfdom was treated practically as a form of land tenure which was given to the tillers of the soil without any definition of time, with the obligation of the tiller to work on the land and to pay a part of his produce to the owner of the land —the king. Other obligations (especially compulsory work for the state) which lay on the peasants of Egypt in addition to the obligation of cultivating the land on specific conditions devised by the landowner, were not confined to the peasants and were not connected with land tenure as such. They existed from time immemorial and were inherited by the Ptolemies from their predecessors, the former rulers of Egypt. One of the main features in the life of Egyptian peasants and artisans was, however, jealously kept by the Ptolemies and never reduced and restricted. I mean the rule that every peasant belongs to his place of residence ("idia" in Greek, "origo" in Latin), is supposed to stay there and to perform his work. In its strict form, however, the rule was never observed even in Hellenistic Egypt.

What the evolution of serfdom in Western Europe was during this same time we do not know. It persisted in Gaul, but the forms in which it existed are unknown. In Carthage it might have been used along with slavery for cultivating the large estates of the Phenician and half-Phenician aristocracy. In Italy, certainly, if serfdom really existed in Etruria, which seems to be an historical fact, and in Rome, which is more doubtful, it had the same tendency to disappear and to dissolve in private landownership and land tenure. Peasant-owners and peasant-tenants are the typical tillers of the soil all over Italy in the times of the formation and the blossom of the Italian federation of cities and tribes under the leadership of Rome, as they were typical for all the city-states, especially in Greece, at the same period.

### *II. The Early Roman Empire*

It is a well-known fact, which I have not to deal with here, that the Italian federation was gradually transformed into the Roman Empire in the second and first centuries B.C. Parallel to this transformation, the leading type of landownership assumed in Italy not the forms of small landownership or tenancy (the owner in this last case being either a private person or the state), but the forms of large landownership by absentee landlords who resided in the city of Rome or in the cities of Italy. There is nothing peculiar in this process. The same evolution is typical for all the lands where property in land was recognized and protected by state and law. We meet it both in Greece, in the Greek city-states, and in the Orient, in those parts of it where serfdom was not predominant but subsidiary (Mesopotamia, Syria, Palestine). The large estates of the Roman aristocracy were tilled mostly by gangs or groups of slaves (the most progressive types of estates concentrated on wine and olive-oil production and on cattle breeding). On some of them, especially those with a poorer soil, the tillers were free ten-

ants, *coloni,* who rented the land from the landowners and paid a rent to them mostly in money.

The transformation of the Roman State into a world Empire enriched enormously the ruling aristocracy of Rome, which included the more energetic and thrifty Roman citizens. The number and the sizes of the large estates grew constantly both in Italy and in the dominions of Rome, the provinces, that is, the former Greek city-states or Hellenistic monarchies, or even tribal states of Central and Western Europe. In some of the provinces the Roman capitalists owned estates which had been tilled by serfs before the Roman conquest and which remained in this status after it. Most of their estates, however, were tilled as in Italy by slaves and tenants. The situation of the free peasants and tenants in Italy grew gradually worse. Constant wars and the growing fortunes and political influence of the leading classes brought about the impoverishment of the peasants and made them dependent on the large landowners. Many free peasant-owners of their plots became tenants, and all the tenants were humble clients of the aristocrats and plutocrats of Rome, though they were at the same time politically (at least in theory) the masters of the Roman World Empire.

This inconsistency led to the civil wars of the first century B.C. In these wars the proletariat of Italy—the peasants forming the armies of the ambitious men who fought for personal and for some other political aims—was fighting for a redistribution of property in land and for a reorganization of the social and economic life of Italy by which the economic situation of the masses of the population would not be in such an appalling contrast to their international and political status. How far this aim was achieved at the end of the civil wars is very difficult to say. About half a million proletarians received from the victorious leaders large plots of land for cultivation both in Italy and in some of the provinces. They formed after that time the leading and most influential part of the city-bourgeoisie of Italy and of the Romanized provinces. The land which they received was, of course, taken away from the former landowners, especially from the former city-bourgeoisie and from some members of the Roman aristocracy. Most of the dispossessed landowners, however, emigrated to the provinces, and in most cases they formed there the upper class of the population, thus creating in the Western provinces a well-to-do bourgeoisie of Roman citizens who took up their residence in the newly created urban centers of life.

The main phenomenon which was brought about by the civil wars was therefore not a further proletarization of the masses of the Italian population, which, as a matter of fact, was stopped by the civil wars, but a transformation of considerable numbers of proletarians into well-to-do landowners. The middle class of city residents was never so strong and numerous in Italy and in the Romanized and Hellenized provinces as it was after the civil wars. No wonder that Augustus based his reform of the Roman Empire on this partly new, partly old city-bourgeoisie made up of the Roman citizens both of Italy and of the provinces. Most of the members of this city-bourgeois class were not peasants, but landowners. Probably very few of them tilled the soil of their landed property with their own hands. The labor employed on their land, which was managed according to the scientific methods of Hellenistic agriculture, was slave labor, as is shown by the

investigations of the ruins of Pompeii, especially the villas near Pompeii (the so-called *villae rusticae)*. Some parcels of the larger estates were let to tenants, who often combined husbandry on their own land with husbandry on the land leased from the city-landowners (for instance, the "coloni" of Horace). Along with these medium-sized estates of the city-bourgeoisie, large estates of the aristocracy and plutocracy of Rome still existed and were managed in the same way as before, that is, by means of slaves and tenants. New-rich of the type of well-known Trimalchio, the hero of the novel of Petronius, sometimes rivaled the Roman senatorial and equestrian aristocracy and the favorites of the emperors in the volume of their fortunes and the extent of their estates. Thus in the early Roman Empire the class of humble tenants of absentee landlords had not disappeared completely but was no more so prominent, at least in Italy, as it had been in the first century B.C. Replaced by slaves, large numbers of tenants emigrated to the provinces, where they mostly formed a part of the city-bourgeoisie, which constantly grew in numbers with the gradual urbanization of both the western and eastern provinces of Rome. How these emigrants organized their economic life we do not know. It is probable, however, that in exceptional cases only they would work the land with their own hands. Abundant labor was supplied both by the natives and the slaves.

It is evident that the early Roman Empire with its economic structure as described above was not favorable to serfdom and to its maintenance and development. It was based on private property; and serfdom, where it still existed, appears as a mere survival. In fact, serfdom in a modernized form still was the leading economic and social feature of the life in Egypt where it existed on imperial and state lands along with the development of a class of private landowners. It assumed, however, much milder and much more modern forms even in comparison with its Ptolemaic organization. This gradual transformation was no doubt due to the influence of Roman law and Roman administrative practice. The same must be said of the imperial domains and the temple lands in the East. How far serfdom survived in what had been formerly the Carthaginian African state we do not know. It might have left some traces in the organization of the relations between the new landowners of Africa and the old inhabitants who, as tenants, tilled the soil of their new masters. Still less is known of the conditions in which lived the clients of the Gallic landowners, the last being now to a large extent immigrants from Italy. The most natural assumption is that the tradition of serfdom survived in some of the devices by which the relations of landowners to their tenants were regulated.

The early Roman Empire both in the West and in the East was a blessed time for the development of cities and of the city-bourgeoisie. New cities and new groups of city-bourgeoisie sprang up all over the Roman Empire in scores and perhaps in hundreds. New lands were made accessible for cultivation and new possibilities for applying the methods of scientific agriculture were opened. It reminds one of the early days of the United States of America and of the activity of the French colonists in Tunisia and Algeria. The government, based as it was on city-bourgeoisie, fostered this movement. The emperors looked with suspicion on the magnates and nabobs, especially the members of

the Republican aristocracy, and ruthlessly exterminated them. They preferred large fortunes to grow up in the provinces and to be in the hands of the municipal aristocracy. Hence their ruthless persecution of the rich and aristocratic families of Rome and Italy and a far-reaching confiscation of their landed property. By the second century A.D., land in the Roman Empire was owned either by the emperors (that is, the state) or by members of the municipal bourgeosie. In some places, like some parts of Italy, Thrace, Syria, and Palestine, free peasant-landowners formed the largest landowning class. Cities in these places were rare and the city-bourgeoisie not very numerous.

### *III. Period of the Enlightened Monarchy—The Crisis of the Third Century and the Renaissance of Serfdom*

The evolution which began in the first century A.D. with Augustus reached its climax in the second century, the time of the enlightened constitutional monarchy of the Antonines. The Roman Empire reached its natural frontiers in the west, in the south, and to a certain extent in the north. In the northeast and southeast it faced the large groups of Germans and Iranians which it was not able to assimilate. Along with the city life the notion of private property in land penetrated to the remotest corners of the Roman Empire. City life and serfdom were in the last item incompatible, and in the city territories the last remainders of serfdom gradually disappeared. The ultimate refuges of serfdom were some of the imperial domains in the East (including Egypt) and a few temple territories.

With the arrest of the expansion of the Roman Empire a grave economic question arose, the question of providing labor for scientific and capitalistic agriculture. The tendency towards concentration of landed property in the hands of capitalists and city residents could not be stopped. The economic evolution of a prosperous world Empire based on private property tended naturally towards capitalism, and the best (that is, the safest) investment of capital was in landed property. But where could one get labor for the private estates? In the peaceful times of the Roman Empire, with its thoroughly civilized life, slavery could not provide labor both for domestic life and industry and for agriculture. The influx of slaves from abroad became slow, and in the enlightened atmosphere of the Antonines no slavery could originate in the civil relations inside of the Roman Empire. Nay, the emperors did their best to facilitate manumission of slaves and to transform the largest possible numbers of slaves into free residents of the Roman Empire.

The only substitute for slavery was either hired free labor or tenants. Both were used extensively. However, the supply of hired labor being insecure, since transportation was very slow and difficult, the easiest way was to let out land to tenants, *coloni,* on various terms: short-term leases, leases without term or on a more or less long term, and emphyteutic leases—virgin or waste land let to those who were ready to transform it into gardens and fields and to keep it for an indefinite time, with the obligation of paying a moderate rent. The rent was paid either in money or in kind according to circumstances. In the hands of the tenants scientific management of the land was rather an exception. Scientific management requires capital (that is, good inventory, abundance of labor and cattle), and this

was what most of the tenants lacked, since they were men who were not able to find a more profitable occupation, open to everybody. Capital was often supplied by the landowners, but rarely with success. The prevailing system was lease without term or leases renewed almost mechanically from term to term. On the imperial lands emphyteutic land tenure was largely used.

Tenants who lived generation after generation on the same parcel of land formed close relations with the landowners, the landowners being their natural protectors and masters, the tenants being the humble clients of the landowners. Frequently the tenants of today were the slaves of yesterday. On the imperial lands the tenants regarded themselves as clients of the emperor himself, "their own folk." Such relations are natural and have nothing to do with serfdom, that is, a formal bondage to the soil. The tenants were free to leave their parcels at any time, provided that they were able to find another place in which to live and to work. Naturally they did not desire such a change as they grew more and more used to their place of residence, their house, their neighbors, and their masters. But when they grew angry they threatened the master, be it even the emperor, that if the conditions of their life were not changed they would quit and look for another place of residence. And they certainly carried out their threats frequently.

The tenants of the second and third centuries A.D. were, therefore, free men protected by Roman civil law and by the administration of the Empire. We must not forget how much Roman law and the emperors did just for the weak against the strong, for the *humiliores* against the *potentiores*. The tenants were, of course, often cheated or regarded themselves as cheated, but in the main Roman civil law never discriminated between rich and poor and was rather inclined to turn the balance in favor of the poor. Economic evolution was also favorable to the tenants. The supply of labor was scanty and the landowners needed good tenants much more than the tenants needed any landlord. Unemployment was not a phenomenon typical of the early Roman Empire.

Such was the situation in the Roman Empire as late as the first half of the third century A.D., as is proved by scores of documents. And yet when we skip a period of less than 50 years, from the end of the dynasty of the Severi to the time of Diocletian and Constantine—what a change! We hear very little of free tenants and free peasants. The typical tiller of the soil both on the imperial estates and on the large estates of the rich landowners, as well as on the estates either assigned to the cities or held by the municipal bourgeoisie, is still a *colonus*, that is, a tenant; but he is no more free. He is bound to the soil, to his parcel of land and to his house; and this bondage, which is not far from slavery, is efficiently protected by law and government. How can we account for such a change?

The prevailing theory says that it was a natural development from the conditions of the second century. A long-term tenant might at any time become a serf, that is, might be enslaved by legal means by a rich and influential landowner; and this natural evolution was just what had happened in the little-known 50 years of the dark third century A.D. Those who advocate such a theory are not aware that the change was an enormous one. It was practically a change from liberty to

slavery, and to this change the government had given its sanction. No government could give its sanction to such a change unless there was bitter necessity for doing so. By normal evolution such a change could not be effected; it could only have been prepared. By preparation I mean the existence of a class of humble tenants who for the most part lived on the estates of the emperor and of the rich landowners for generations. However, a catastrophe must have intervened for transforming legally in such a short time millions of free agriculturists, many of them and later all of them citizens of Rome, into half-slaves bound to their master, be it the state or a private landowner.

In quite recent times some scholars have suggested that the catastrophe which brought about such a change was neither political nor social; it was a natural one. It was the exhaustion of the soil, which was suddenly realized in the third century, that forced the government to use compulsion for retaining tillers of the soil on their parcels which had become practically sterile. Such an explanation in no way harmonizes with ascertained facts. Never in the second century did the people complain of any exhaustion of soil. And how could the soil of such provinces as Africa, Spain, Gaul, the Danube lands, and so forth, have been exhausted in a very short time by systematic agricultural exploitation with the help of refined devices of scientific agriculture? The soil of Egypt and of Mesopotamia is inexhaustible in any way, provided that measures are taken for regulating the yearly floods of the rivers. The alluvial soil of these lands, if duly watered and carefully managed, yields abundant harvests.

A catastrophe certainly came about and changed the aspect of the Roman Empire, but it was not due to nature. It was created by the conscious and subconscious activity of men. Let us state the facts. In the third century general misery descended upon the Roman Empire. All over the Roman Empire, not only in Italy and Greece, large tracts of cultivable land lay waste and untilled. In Egypt the system of dykes and canals was neglected, and without it the land was doomed. The same is true of the works of irrigation in Africa, Spain, Asia Minor, the Syrian lands. These systems of irrigation, so essential for the conditions of agriculture in the south, had been created by men and were gradually improved by them. Now they became neglected and the result was waste land, the desert advancing again and conquering one field and one garden after another. This neglect was not due to the exhaustion of the soil. The soil of Egypt, provided that the Nile does its work—and it very seldom fails to do so—is inexhaustible; but men must help nature. Here, as in other places, it was this help that failed. Disorganization and lack of labor made the rich fields of the past waste and desolate. And for explaining the gradual desertion of formerly fertile land we must first account for this lack and disorganization of labor, which, after all, is the main foundation of human society in general.

I have given the explanation of this disorganization of labor in another place.[2] If I may summarize this explanation, it was the direct result of a lasting social and political revolution which shattered the foundations of the Roman Empire in the third century. In the last analysis this revolution was an elemental fight of the tenants and peasants against the city bourgeoisie, a

[2] In my book on the Roman Empire, quoted in the first paragraph of this article.

struggle which had been prepared by centuries of evolution in the ancient world. The exponent of the hatred of the lower classes against the upper was the army and its leaders—the emperors appointed by the army. In the turmoil of this mad struggle, chaotic and illogical as such struggles always are, the fabric of the Roman Empire went to pieces, and first of all the highly sensitive machine of the finely developed economic life of the Roman Empire disintegrated. Civil war provoked foreign wars, and in their trail came pillage, devastation, famine and plague. The sea was in the hands of pirates, the land roads were infested by brigands. And no rest was given to the unhappy population. Emperor after emperor was killed in the internecine war, and every new spasm of it invited the Germans and the Iranians to renew their attacks and their devastations, after which famines and plagues, robbery and murder, followed with the regularity of a natural phenomenon. And last but not least, civil war required wealth, and the emperors instead of protecting the Empire were the first organized robbers of it. Force and compulsion were their weapons.

No wonder that the population of the Empire became utterly demoralized and disorganized—first and foremost in its economic activity and in its reproduction. Work was given up: it was of no use to work with no stability and no hope. Children were not reared, or if reared, were not cared for and educated. No wonder that in such conditions the best land lay waste and depopulation was the leading phenomenon of life. Productive work was done by the masses for a large army of greedy drones. To these drones belonged also the absentee landlords, themselves hard pressed by the disorganization and violence of the times. It is only natural that these masses became discouraged and would have stopped working altogether were it not for the necessity of maintaining one's own life and the life of one's family. When the Empire, after 50 years of such life—and we know what 50 years might mean, we who lived through the World War and the acute social revolution of Russia—came to its senses, it lay practically in ruins. The bourgeoisie was decimated and utterly demoralized; the worst element only had survived. Labor both in the cities and in the country was scarce and completely out of balance. Agricultural production, industry, and commerce were not able to supply the necessities of life. No goods came on the market, and, therefore, the period was characterized by enormous and ever-fluctuating prices.

For the government, after the crisis was over, the only two ways out of the terrible dilemma which stood before it were either to let the Empire alone and give it time for recovery while helping the laboring classes as the Antonines had done, and protecting them against the drones, or to use force and compulsion and to start again, by these means, the economic machine. Was it possible for the state to take the first way? No doubt the process was a slow one, and the needs of the Empire were pressing. In any case the state chose the second path. It took the conditions created by force and compulsion for granted and gradually legalized them. The population of the Empire was driven back to normality by cudgels. The state enslaved the whole population: the aristocracy and the city bourgeoisie, the laborers, the artisans and the shop-owners, the landowners and the tenants, the officers and the officials, the merchants and the shop assistants, the ship-

owners and the sailors all alike. The bondage, the serfdom in agricultural life, was only one side of the picture, though, of course, in the primitive conditions of the time, the most important. It is probable that in regulating the relations of the state and of the landowners to the new serfs the government used the devices which still had survived in the few islands of bondage and serfdom.

How did the Roman population allow the government to perform such an operation on it? Do not forget that relative quiet came after years of storm, that generations both of rulers and of subjects grew up in the atmosphere of violence, murders, compulsion, robbery! There were generations that had never seen 10 consecutive years of peace, and nobody had lived even for a few months in the normal air of legality and honesty. Force and violence were both the motto and the practice. Law and order were dreams. Besides, by a long evolution, by long years of quiet life and of complete subjection to the central power, the population of the Roman Empire had lost the habit of self-help and initiative, and had become accustomed to be ruled and to be directed. It was no wonder then that in such conditions as these the residents of the Roman Empire had no force of resistance left and submitted blindly, though reluctantly, to the reforms of Diocletian and Constantine, or rather to their administrative practice, especially in the field of taxation, which gradually assumed the form of special local regulations developing finally into more or less general legislation.

Such is the origin of the revival of serfdom in the ancient world. It came back again and came to stay. No normal evolution alone can account for such a revival. No natural causes can explain it. The explanation lies in the activity of men, in their complex psychology. Is an elemental outbreak of the spirit of destruction, which is a social revolution, also a necessity, an elemental force? Or may men foresee such an outbreak and prevent it? Who knows? In any case the Roman colonate of the late Roman Empire with its slavery and degradation was the legitimate child of the social revolution of the third century A.D., which was prepared, of course, by the long centuries of evolution in the Hellenistic period and in the early Roman Empire.

# RENT AND INTEREST AS SHARES IN THE PRODUCT OF ENTERPRISE

*By* WILLFORD I. KING

ONE of the most fundamental parts of every text-book on economics is a section dealing with the distribution of the value product of enterprise. The treatment ordinarily accorded to this topic seems to have been influenced unduly by the historical antecedents of the theory of distribution. The classical school of English economists, to whom we are indebted for so much that is worth while in economic theory, drew a large proportion of their illustrations and based many of their principles upon the situation prevailing in British agriculture at the time when they wrote. For this reason, the typical farmer was pictured as renting his land from a landlord, as hiring much of his labor, but as owning his machinery, and, in many cases, the buildings on the land. While this picture was doubtless accurate for England, it has not been generally applicable to the United States. Nevertheless, it probably is responsible for the view so widely held by orthodox economists that rent is associated with land, and with land only, and that rewards paid for the uses of other types of property are not *bona-fide* economic rents, but merely quasi-rents.

## *Classical Theory of Distribution*

According to early classical theory, when the costs of materials, wages and salaries, and land rent were subtracted from the total value of the produce of the land, the remainder represented the profits of the owner. Soon, however, the fact was pointed out that profits were not homogeneous, but might well be divided into several parts, according to their respective origins. It was observed that a farmer of limited means could increase his output by borrowing money from others and purchasing additional live stock, machinery, fertilizer, or land. In such cases, however, he had to pay out a certain part of his gross profits as interest on his loan. A wealthier farmer, however, might, without borrowing, have sufficient funds to equip his farm equally well and secure a product of like value. He would have to pay no interest, and hence his profits would be increased by the amount the other paid for the loan. Clearly, then, profits and interest were closely tied up together. It seemed perfectly logical, therefore, in analyzing the distribution of the gross receipts, to assume that part of the return should be ascribed to the capital invested in the enterprise and part to the efforts of the entrepreneur. Since the English farmer's capital was invested in improvements and equipment rather than in the land itself, the residue left after the farmer had paid for the materials purchased, wages for the labor hired, and rent of the land, was assumed to consist of three parts: (1) interest, (2) a wage to pay for the farmer's own efforts, and (3) such chance gains as might accrue through market changes. The interest charge thus arrived at was itself subdivided into interest paid on loans and interest imputed to the farmer's investment in improvements and equipment.

This line of reasoning was carried

over from the English farm situation and taken as a basis for the general theory of distribution. As a result, the orthodox text-book of the present day is likely to divide the net product of industry into four parts, and the student is told that rent is paid for the services of land, wages are the recompense of labor, interest is the reward for the services of "capital goods," and the residue, called profits, goes to compensate the entrepreneur for his efforts and his risk. "Capital goods," which, in turn, are defined as "the products of past industry used in the further production of social wealth," include buildings, machines, tools, live stock, and other equipment used in the conduct of the enterprise.

According to this analysis, interest is coupled indissolubly with that particular class of physical objects which, in existing parlance, are usually called "capital goods," but which may more logically be termed *intermediate* or *transition* goods. There seems, however, to be no particular reason for this association except the observed fact, peculiar to British agriculture, that the farmer commonly borrowed money to buy equipment, and hence that the larger part of his interest payments went for this type of loans.

While there are other economic fallacies that have, perhaps, become more ingrained in the popular mind, it is probable that this particular one has imbedded itself more firmly than any other in accepted economic theory. Some of the most painstaking works on the theory of interest have dealt almost entirely with interest imputed to this class of goods, and have dismissed as almost irrelevant interest actually paid for money loans. The truth is, however, that the entrepreneur borrows money or invests his own capital not merely in *transition* goods, but also in land, power, wages, and salaries. Since he may borrow for any of these purposes, there appears to be no more logic in connecting the interest rate with the supply of *intermediate* or "capital" goods than with the supply of land or of labor. An increase in the supply of *transition* goods will, of course, depress the rate of reward which will be paid for their use, but there is no reason to assume that such a fall in *rents* is likely to produce a corresponding fall in *interest* rates. The existence of any such correlation has, at any rate, not been established.

### *Nature of Payments of Rent*

It is not, however, the purpose of this article to discuss the theory of interest, but the facts just mentioned will perhaps make clear the origin of the ideas of imputed *interest* and imputed *rent* that have tangled up the entire theory of distribution. Names do not matter, and it may be desirable to confine the term "economic rent" exclusively to payments for the use of gifts of nature. It is, however, essential that different concepts be clearly distinguished, and that unlike categories be not confused by giving to them identical titles. The outstanding fact which it is desired to emphasize at this point is that payments for the services of physical objects are all very similar and form a category entirely distinct from payments for money loans. For once, the man on the street is right when he refuses to distinguish between payments for the use of land and payments for the use of buildings, and calls them all by a common term. As to whether his practice in naming this concept "rent" is or is not to be followed, is, after all, a matter of but minor moment.

Payments for the services of inani-

mate objects are much more akin to payments for the services of human beings (commonly called wages or salaries), than they are to payments for money loans (known as interest). Every service-reward is paid for the use of some object for a given period of time. Rents are not dependent upon the value of the object rendering the service; indeed, the value itself is merely a derivative from the service-rewards, being the present worth of all such rewards or rents expected in the future. Interest payments, on the other hand, invariably presuppose an agreement between borrower and lender as to value and are always calculated as a percentage of the face of the loan.

Since the loans for which interest is paid may be used as frequently for the purpose of purchasing land, or of hiring laborers, as for buying *transition* goods, interest may as well be imputed to the value of land owned as to the value of any other property used in the operation of an enterprise. It is, then, illogical to attempt to divide the net value product of enterprise into the four categories: rent, imputed interest, payments to labor, and profits—for interest, if imputed correctly, must necessarily overlap on the other fields.

### *Divisions of National Income*

The concept of income received differs, however, from that of value produced; here it is perfectly logical, in computing the current income of a group of people (as, for example, the inhabitants of the United States) to ascertain the total amount of such income received by adding together wages, salaries, contract rent, interest on money loaned, dividends, and individual profits withdrawn from business. In this manner of calculating the results of distribution, there is no overlapping; for none of the items are imputed. All represent actual receipts.

It is equally logical to divide the income of the people of the United States, partly on the basis of imputation, into the following shares:

1. Rewards for the services of human beings.
2. Rewards paid for the services of natural resources and such improvements as are inextricably entangled with the natural resources. (These are what orthodox economists call "economic rent.")
3. Rewards for the services of all *intermediate* or *transition* goods. The fact should be noted that this reward is, in its nature, practically identical with the rent paid for the services of land and other natural resources, and involves no assumptions concerning the value of these goods.
4. The residuum, commonly called profits, made up of imputed wages for entrepreneurs, payments for risks carried by the entrepreneur, monopoly gains, and fortuitous gains or losses.

Either of the above classifications of the value product is logical when taken by itself, but the two cannot be compounded without destroying the accuracy of the analysis.

Although, as has been pointed out, the erroneous use of the idea of imputed interest has seriously confused the economic reasoning of the day, it does not follow that the imputation of interest is always to be condemned. For certain accounting purposes, it is both logical and desirable to figure imputed interest on the investment. The fact not commonly recognized, however, is that there are just as many instances in which it is desirable to impute *rent*[1] instead of *interest*. Whether or not one should use

[1] The term "rent" is here used to cover all rewards for the services of physical objects.

imputed *rent* instead of imputed *interest* depends wholly upon the nature of the question that is to be answered.

### *Defining the Problem*

The first essential in every scientific inquiry is to define the problem with a high degree of accuracy. Far too frequently a tremendous amount of time is wasted in the futile attempt to obtain an all-embracing answer applicable to a number of different questions. Obviously, this is a hopeless task. The correct procedure is to find the answer to each question independently.

By applying this principle, it will be found that many of the problems of distribution which have puzzled economists will disappear. There has, for example, been much dissension among writers concerning the correct method of figuring cost of production, or of calculating the "labor income" of farmers. Most of the disputants have assumed that there existed one, and only one, correct way of making the calculation. The truth seems to be that there are a number of equally accurate apportionments, each of which is adapted for solving some particular problem.

While there is, of course, no end to the variety of problems for which solutions may be sought, the following types are among those commonly brought up for discussion. A consideration of these will doubtless point the way to the correct method of solving other problems of a slightly different nature.

Let us consider the case of the farmer, scanning his accounts for two years, to see whether or not he was wise in engaging in his present farming enterprise. What would be the questions that would apply to his situation?

A. Questions in which speculative gains and operating profits are *not* separated:
   1. After allowing for interest on his investment, what return did the farmer get for his time and effort in each of the two years?
   2. If the farmer had hired out as an employee, would he have made as high a rate on his capital as he did by farming?
   3. Did the farmer, by investing in the farm and operating it, make any net profit over and above a fair rate of interest on his investment and a reasonable wage for his services?

B. Questions in which speculative gains and operating profits *are* separated:
   1. How much did the farmer make as a speculator, and what was his return for his mental and physical labor in operating the farm?
   2. When speculative gains are left out of consideration, did the farmer make any actual profit from the operations of the farm?

C. Questions relating to production costs:
   1. What was the cost of producing a bushel of wheat in 1921, as compared with the cost in 1920, on the same farm and by the same farmer?

In order to put these problems in concrete form and clarify the reasoning involved, let us suppose that we are dealing with a Dakota wheat farm, the facts concerning the purchase of which are given in Table I.

TABLE I. ASSUMED FACTS OF PURCHASE OF DAKOTA FARM

| Item | Value | Cash Payment | Mortgage | Annual Interest Charge | |
|---|---|---|---|---|---|
| Farm bought Jan. 1, 1920 | $32,000 | $12,000 | $20,000 | 6% | $1,200 |
| Equipment (including machinery, live stock, etc.) | 4,000 | 2,000 | 2,000 | 8% | 160 |
| Total | $36,000 | $14,000 | $22,000 | | $1,360 |

This study will cover the years 1920 and 1921, and we will suppose that the

same farmer operated the farm in each year. We will also assume that the improvements made on the farm were just sufficient to offset the amount of physical depreciation in the property, and that, from the physical standpoint, the inventory of buildings, live stock, machinery, and other equipment was practically the same on January 1 of each of the years 1920, 1921, and 1922.

Throughout the two-year period, the value of farm land and equipment was falling, fair prices at the beginning of each year being as given in Table II.

TABLE II. VALUES OF LAND AND EQUIPMENT, 1920-1922

| Item | Jan. 1, 1920 | Jan. 1, 1921 | Jan. 1, 1922 |
|---|---|---|---|
| Land | $32,000 | $30,000 | $26,000 |
| Farm equipment | 4,000 | 3,000 | 3,000 |
| Total | $36,000 | $33,000 | $29,000 |

The net money proceeds from the operations for the years 1920 and 1921 were as given in Table III.

### *Conclusions from Inquiry*

With these assumed facts, we shall now consider the answers that should be given to the various questions asked.

TABLE III. INCOME AND EXPENDITURES, 1920-1921

| Item | 1920 | | 1921 | |
|---|---|---|---|---|
| Crop value | | $3,000 | | $2,800 |
| Interest | $1,360 | | $1,360 | |
| Wages | 600 | | 400 | |
| Miscellaneous expenses | 540 | 2,500 | 340 | 2,100 |
| | | $ 500 | | $ 700 |

QUESTION 1. After allowing for interest on his investment, what return did the farmer get for his time and effort in each of the two years?

The way that this question is put indicates that the farmer has in mind a definite rate of interest that he could obtain on his money. Let us suppose that he had contemplated, as an alternative, putting his money into a mortgage on which he could have received 6%. He had had, however, no very definite idea of the wage that he could earn if he worked as an employee. Hence, he made no attempt to separate this item from the rest of his gains. Neither did he differentiate between profits made as a speculator in farm land and equipment, and profits accruing through the operation of the farm. From this point of view, the farmer would, therefore, be justified in saying that, after paying for the use of the borrowed money and for the actual money spent for operating expenses, he had only $500 left in 1920 and $700 left in 1921, while if he had put out at 6% the $14,000 cash which he invested in the farm and its equipment, he could have obtained $840 each year without doing any work. On this basis of calculation, the farmer and his family received for their efforts $340 less than nothing in 1920 and $140 less than nothing in 1921. These answers are correct, for they fulfil the conditions of the problem. This does not mean, however, that they answer the other questions asked.

QUESTION 2. If the farmer had hired out as an employee, would he have made as high a rate on his capital as he did by farming?

The farmer who propounds this question in the form given does not have in mind a definite rate of interest which he could have obtained for his money had he invested it in some other way than in the purchase of a farm, but he does

know of a chance of employment for himself and his son which would have netted the family $1,400 per year. With this fact in mind, he inquires, not concerning the reward for the efforts of himself and family, but, instead, for the rate of return that he has made on his investment. The first farmer imputed interest to his investment. This farmer, on the other hand, imputes wages to himself and son. One point of view is just as correct as the other. The two questions simply mean that the same situation may be looked at from different angles. On the basis of the second farmer's way of looking at the problem, the solution is obtained thus: His excess of receipts over expenditures was only $500 in 1920, while he could have made $1,400 for his labor. In other words, his capital yielded him $900 less than nothing, and $900 on the basis of a $14,000 investment gives a net loss of 6.4%. Similarly, in 1921, his capital yielded a deficit of $700, or a loss of 5% of his principal.

QUESTION 3. Did the farmer, by investing in the farm and operating it, make any net profit over and above a fair rate of interest on his investment and a reasonable wage for his services?

In the third question, as just stated, the farmer takes a point of view slightly different from either of the preceding. In this instance, he assumes that he had a definite opportunity both to invest his $14,000 at 6% and to obtain employment for himself and son at a combined wage of $1,400 per year. Since both of these particulars are premised, he asks the question as to what net profit he has made by going into the farming business.

In answering this question, he will figure as shown in Table IV.

The answers to the three questions mentioned above have all been given from the point of view of the man who expected to continue operating the farm for an indefinite period, for, in each case, the decline in the selling value of the property has been ignored. For many purposes, however, it is much more logical to take this fact into account. If we assume that the general purchasing power of the dollar remained unchanged, the conclusion must be that there was a loss in property values of $3,000 in 1920, and $4,000 in 1921. When this is taken into account, the answers to the respective questions are as given in Table V.

TABLE IV. NET LOSS AFTER IMPUTING INTEREST AND WAGES

| Item | 1920 | | 1921 | |
|---|---|---|---|---|
| Net operating income | | $ 500 | | $ 700 |
| Imputed interest on investment | $ 840 | | $ 840 | |
| Imputed wages | 1,400 | 2,240 | 1,400 | 2,240 |
| Net loss | | $1,740 | | $1,540 |

TABLE V. SUMMARY OF NET LOSSES BY DIFFERENT CALCULATIONS

| Particulars | 1920 | 1921 |
|---|---|---|
| Question 1: Net loss | $3,340 | $4,140 |
| Question 2: Net loss | 3,900 | 4,700 |
| Question 3: Net loss | 4,740 | 5,540 |

### *Speculative and Operating Losses*

The analysis just given has the defect, however, of confusing speculative losses and operating losses. The truth is that these two concepts have not been segregated in any of the problems thus far stated. Since, however, it frequently happens that a man may make money as a farm operator and igno-

miniously fail as a speculator, or *vice versa*, it is often desirable to differentiate these functions and study one or the other by itself. Such a differentiation cannot be successfully made, as long as one considers interest on the investment as an operating cost.

In the present instance, the man who bought the farm and equipment in 1920 for $36,000 incurred two kinds of speculative losses:

1. The property fell in value.
2. He was paying interest on a value higher than that existing during the period.

Both of these losses reflect bad judgment or bad luck as a speculator. Neither should appear in an accounting intended to show his efficiency as a farm operator, for the fact that he guessed badly on the course of prices of farm land and equipment tells us nothing whatever as to his skill as a cultivator.

This fact is made clearly evident when we consider the cases of two men who bought equally good farms at different periods and different prices, but who are operating side by side and farming in identical manners and with equal efficiency. Clearly, their operating accounts should show equal gains, but this will not be true if interest on investment is allowed to enter into the calculation.

To compute operating gains it is, then, essential to discard all figures on interest on the investment and substitute therefor, in all cost accounts, estimates of rents as they existed in the periods considered.

To apply this method in answering Question 4 and those that follow, let us make the following additional assumption; namely, that an adjacent farm, having approximately the same quality and equally well equipped, could have been leased in 1920 for $1,300 and in 1921 for $1,100. Suppose the farmer invested his money elsewhere and leased this adjacent farm. This hypothesis will enable us to test his ability as an operator, unmixed with his speculative skill or lack of skill.

QUESTION 4. How much did the farmer make as a speculator and what was his return for his mental and physical labor in operating the farm?

The answer to the first part of this question is given by the computation in Table VI.

TABLE VI. CALCULATION OF NET SPECULATIVE LOSS

| Item | 1920 | 1921 |
|---|---|---|
| Loss in value of property | $3,000 | $4,000 |
| Interest paid | 1,360 | 1,360 |
| Sum of above | $4,360 | $5,360 |
| Imputed rent of land | 1,300 | 1,100 |
| Net speculative loss | $3,060 | $4,260 |

The solution of the second part of the problem is obtained as shown in Table VII.

TABLE VII. LABOR RETURN FROM OPERATING FARM

| Item | 1920 | | 1921 | |
|---|---|---|---|---|
| Crop sold for | | $3,000 | | $2,800 |
| Wages of hired help | $ 600 | | $ 400 | |
| Miscellaneous expenses | 540 | | 340 | |
| Imputed rent | 1,300 | 2,440 | 1,100 | 1,840 |
| Pay for services of farmer and family | | $ 560 | | $ 960 |

### *Calculation of Operating Profits*

Though, in both years, the farmer gained money as a farm operator, he

did not make nearly enough in either case to offset his losses as a speculator. The chief point to be noted in this case is that, in the calculation of operating profits, the correct procedure is to impute rent. By imputing rent to land, buildings, and other physical equipment, the problem of investment has been eliminated. The practical application of this principle is, unfortunately, hindered, in many instances, by the fact that no data are available from which it is possible to calculate imputed rents with even a reasonable degree of accuracy. Lands and buildings are commonly leased, but such is not the case with equipment and machines. Under such circumstances, the only feasible procedure is to multiply the current price by some rate of interest. The fact should always be kept in mind, however, that this is merely an attempt to approximate a rental value of these objects, and not the interest on their cost.

This method of approximation is rendered inaccurate by the fact that the ratio between the rent of a durable good and its market price is often very different indeed from the prevailing rate of interest. The two are the same only when the general belief is that rents will not change in the future. The value of a durable good equals the present worth of all future rents discounted to the present date at some assumed rate of interest, and it is easy to demonstrate mathematically that the only common case in which present worth equals present rent divided by the interest rate is when the rent is expected to remain constant during an indefinite future period.

We are now prepared to answer Question 5.

QUESTION 5. When speculative gains are left out of consideration, did the farmer make any actual profit from the operations of the farm?

Question 5 differs from Question 4 only in that the farmer proceeds not only to impute rent, but also to impute wages for himself and son. Since he figures that the services of himself and son are worth $1,400, and since the return actually obtained in 1920 was only $560, he may well calculate that, as an operator, he had a net loss of $840 in that year. Similarly, in the next year, since he calculated an operating return of only $960 for the services of himself and son, a deduction of $1,400 would indicate a net operating loss of $400.

### *Calculation of Unit Cost*

QUESTION 6. What was the cost of producing a bushel of wheat in 1921, as compared to the cost in 1920, on the same farm and by the same farmer?

At present, cost accounting has become a matter of great importance in many fields of industry, and numerous systems have been devised for applying this science to farming operations. The aim of cost accountants is almost invariably to measure, not speculative profits, but rather operating costs. Since this is true, it follows that the procedure used in answering Questions 5 and 6 is approximately the one that must be applied in measuring comparative costs of production at different dates on farms of different sizes or in different geographical localities. Cost accounting should, therefore, waive as immaterial all questions of amounts invested or existing value, for past investments are, for these purposes, ancient history, and present values are based upon anticipated future rents and have nothing to do with current cost. In calculating the expense of producing a

bushel of wheat, the correct procedure is, therefore, to impute rewards at current rates to all the physical factors entering into the production of the article. In the case of the farm given, rents should be imputed to the land and the buildings, to the live stock, and to the machinery. It is necessary, in addition, to impute wages to the farmer and his son.

In all cases of imputation, errors are likely to occur, but the difficulty of correct estimation is greatest in the imputation of a wage to the entrepreneur. It is next to impossible to say just what this figure should be. If the man's own estimate of the value of his service is taken as a criterion, it may be far from the truth, and the error may make it appear that the cost of producing wheat on his farm is greater or less than on some other farm, the owner of which assumed his services to be worth a different figure. In the particular case here assumed, the error in the comparison of the results for the two different years is minimized by the assumption that the same farmer operated the farm in both years. If we accept his valuation of the services of himself and son (a procedure which may be dubious enough) and add this amount to the other expenses, the results are as given in Table VIII.

TABLE VIII. COMPUTATION OF COST OF PRODUCTION PER BUSHEL

| Item | 1920 | 1921 |
|---|---|---|
| Imputed rent of farm and equipment | $1,300 | $1,100 |
| Wages of hired labor | 600 | 400 |
| Imputed salary of farmer and son | 1,400 | 1,400 |
| Miscellaneous expenses | 540 | 340 |
| Total | $3,840 | $3,240 |
| Bushels of wheat raised | 3,200 | 3,400 |
| Cost of production per bushel | $1.20 | $0.95 |

In both years, the answer would be materially affected by changing the imputed wage of the entrepreneur. It is next to impossible to get around this obstacle. This difficulty, indeed, constitutes one of the chief stumbling blocks in cost accounting for farmers. Again the fact should be emphasized that neither the price paid for the farm and equipment, nor the interest on the indebtedness, plays any part in calculating the cost of production of the wheat. The inclusion of these items among farm costs is one of the errors into which those engaged in estimating farm costs have fallen most frequently.

### *Practical Value of Above Distinctions*

As previously stated, problems of the type mentioned might be multiplied indefinitely, but it is believed that most of the principles involved have been covered in the discussion of these six cases. It is also felt that, if the just-discussed differences between imputed interest and imputed rent were kept in mind in dealing with the problems of distribution in general, many of the difficulties involved would immediately disappear, for clearly the principles here set forth in connection with a Dakota wheat farm are equally applicable to all other lines of enterprise. It is hoped that these illustrations may serve, also, to emphasize the truth that it is imperative to state economic problems with precision before beginning to answer them, and that it is wholly impossible to find any blanket answer which can be used to cover a group of questions, which, though different in nature, appear, because of vagueness of definition, to be approximately the same.

# A STUDY OF UTILITY FINANCIAL STRUCTURES: SCOPE AND METHOD[1]

*By* A. E. PATTON AND O. GRESSENS

PUBLIC utilities have been the objects of considerable study for many years. Interest in these industries, however, has been manifested chiefly in the solution of engineering problems and in regulatory measures designed for the protection of the public, while little concern has been shown the problems of utility management. Improved systems of rates and regulation for protection against monopolies, trusts, and the moneyed interests have received constant attention. Relatively slight consideration, on the other hand, has been given to those utility problems which may be solved through a study of management. The general policy seems to have resolved itself into legislating good utilities rather than building them.

This lack of study of the economics of public utilities is surprising in view of the fact that for years the internal problems of railroad management and operation have been studied together with the more or less external problems of regulation. In other words, an understanding of railroad management has been gained along with an understanding of regulation, whereas in the case of local utilities attention has been almost wholly centered on problems of regulation. This is surprising, also, because of the fact that most people are more directly and more continuously affected by such services as gas and electricity than they are by steam railway transportation.

Furthermore, from the point of view of investment, the local utilities are, as a whole, comparable with the steam railroads. At the present time, the investment in railroads in the United States is estimated at approximately $20,000,000,000. In the privately owned local utilities, an investment of $6,500,000,000 is found in the electric light and power industry; $4,000,000,000 in the gas industry; $5,000,000,000 in electric railways; and $3,000,000,000 in the telephone business. These investments total approximately $18,500,000,000, which approaches the investment in steam railroads.

In view of the importance of local utilities, it would seem that their internal problems should receive increased attention. They warrant more study of the economic principles governing their management and operation, not only to secure increased internal efficiency, but also that regulation may be more intelligent.

### *Changes in Utility Financing*

Among the most important principles in this respect are those of finance. In the intensive study which has been made of corporate finance, attention has been centered largely on industrials. The economic peculiarities of utilities were not for many years recognized. Consequently, financiers often attempted to apply standard industrial finance and

[1] EDITORIAL NOTE: This is the first of a series of articles by these authors on the subject of financial structures of public utilities. The second article of the series will appear in the next issue of the JOURNAL.

financial instruments to them. The pressure of necessity, however, soon forced changes and recognition of the fact that utilities ordinarily cannot be financed successfully on the basis of accepted industrial plans. The unusually rapid rate at which utilities developed made financial alteration necessary to meet their particular problems. Rapidly expanding companies, for example, soon found their hands tied by closed-end mortgages. Theoretically, closed-end mortgages are most applicable to industries in which a static state obtains among the assets. The utilities, however, had not reached a static level; their assets were constantly increasing. Methods, therefore, had to be introduced which would allow borrowed capital to be acquired more easily. The result was the adoption of the open-end mortgage, which had recently been introduced into railroad finance.

The greater ease with which money could be obtained with this device, however, tended to encourage utility companies to borrow excessively. This often resulted in an overburden of fixed charges. It became easier to obtain money with bonds and relatively more difficult to get money through the use of stock. The utility companies were faced, nevertheless, with the necessity of obtaining new capital. Customer ownership was then introduced. That is, a method was developed whereby the savings of small investors could be readily accumulated and attracted to the utilities by the sale of stock.

Utility finance is thus obviously seeking a proper distribution of equities. This distribution seems to be different from the distribution of equities in industrials. It therefore offers a field for particular study, and an effort should be made to establish a basis upon which to build a theory of public utility finance.

### *Importance of Finding the Representative Financial Structure*

In order to study this problem intelligently, it is necessary to have a knowledge of the financial structures which public utilities have worked out empirically. The result of such a study would not yield an ideal financial structure, but it would yield the representative structure.[2] It would include answers to such questions as: "What is the representative proportion of investment in fixed plant? In current assets? In other assets?" "What is the representative proportion of borrowed fixed capital? Of ownership capital? Of current liabilities?" "What is the representative rate of capital turnover?" "What is the representative operating ratio?"

To gain the necessary perspective of management problems, it is important to obtain answers to these questions and to determine the exact position of the utilities in the general scheme of economic organization. Likewise, it is necessary to determine the representative characteristics of utility companies; that is, through quantitative study to establish real measures with which to compare individual companies. Representative characteristics so established are not ideals; they are actual presentations of utility conditions as they exist. They are not averages in the accepted interpretation of that word. Such averages, which are arithmetic averages, are abstract concepts. The representative company, made up of individual representative characteristics, is a composite

[2] If by such a study it can be established that there are a large number of operating companies which have similar financial structures, then that particular structure common to the greatest number of companies is the representative structure.

presentation of actual operating companies.[3] This representative firm must be built up through a quantitative study of a large number of operating utilities. The approach and methods for such a study deserve further consideration.

*Procedure of Investigation and Statistical Problems Involved*

If it is possible at all to establish the representative financial structure of public utility companies, this could be done by the simultaneous consideration of the financial statements of all the operating companies in existence. But there are great obstacles to such a procedure. The accumulation of the requisite data for one year alone would be an intolerable task. Moreover, for a thorough study one year is not sufficient. Complete financial statements for a period of years would have to be gathered, because, in studying economic data, the trend is more important than the static picture gained by considering the data of any one particular time.

In order to determine the representative structure, however, it is not necessary to consider all extant companies. Sampling may be resorted to for this purpose. An adequate sample will yield a sufficiently accurate picture of the desired structure. In choosing the sample, certain fundamental requirements must be satisfied. In the first place, the sample must, of course, include a sufficient number of individual cases, the exact number of which is impossible of determination *a priori*. The adequacy of the sample must, therefore, be tested. One test of such a sample could be made by comparing the results obtained from it with the results obtained from another similar sample. This would, however, be objectionable on account of the labor involved. It is difficult enough to obtain a first sample without adding the labor of obtaining another similar sample with which to compare it. The sample, therefore, must be tested by a method which does not involve the immediate gathering of additional data. This can be done by comparing the results of several of its own subdivisions, similar to each other. The similarity or dissimilarity of the results that are obtained by this procedure establishes or disestablishes the adequacy of the sample.

In the second place, the sample must be random. In other words, the choice of the individual companies that go to make up the sample must not be influenced by any preconceived bias. Limits, of course, can be set up in constructing the sample, but it must be remembered that the conclusions drawn from the study are in turn restricted by the limits imposed on the sample. That is, if, for a particular reason, a certain type of utility is omitted from the study, then the results of the analysis cannot be applied to utilities generally. Concretely, if water companies are omitted on account of the large percentage of municipal ownership in that particular utility, the conclusions of the study cannot be applied to water companies. Within the limits of the study, however, the choice of the units making up the sample must be random, if the criticism that the results are unrepresentative is to be avoided.

Another question which arises in connection with such a quantitative study is whether or not it is possible to determine representative characteristics on the basis of annual rather than monthly statements. The answer to

[3] This modal average is the one which complies with Alfred Marshall's concept of the representative firm.

this question depends upon the seasonality of the industry and upon its cyclical variations. An industry which is subject to marked seasonal variations obviously cannot be portrayed by a single set of annual statements. The financial changes in such a case necessarily vary with the variations in the demand for its products, and a comparative study, year by year, must take into consideration the shifting positions of the industry within the year. When the factor of seasonality is absent, or, in other words, when the demand for the products of the industry is seasonally inelastic, variations from month to month, *within the year,* do not occur. Again, when the industry does not follow the oscillations of the business cycle, variations *year by year* do not occur. In such a case, the sufficiency of the study based on annual statements is then impaired only by the business custom of endeavoring to have these statements make the best possible financial showing at the end of the year. This results in an artificial, passing financial position. It is often difficult, however, to obtain any other data, and frequently impossible to obtain monthly data in sufficient quantities. Annual statements, based on year-end results, are in most cases the only data available.

When the requisite financial statements have been gathered, the task of standardization remains. This involves two distinct problems. One of them is occasioned by the inconsistencies which arise in accounting practice; the other by the statistical principle of homogeneity.

Absolute accounting accuracy is, of course, not obtainable in the case of every individual statement. Innumerable differences creep into final accounts because of the varying interpretations given to similar transactions by different accountants. It is sometimes difficult, for example, to decide whether or not a particular expenditure is a capital expenditure or a current expenditure; some accountants would treat the same transaction as belonging to the former; others, to the latter classification. Corrections cannot be made for these inconsistencies. Fortunately, however, there is a definite tendency for such inconsistencies to be offsetting rather than cumulative in their effects, so that, in the end, their influence upon the net results of the study is slight.

The statistical principle of homogeneity demands that the individual items of each financial statement be directly comparable with the corresponding items of every other statement. For example, the items included under the classification of fixed plant in any statement must be directly comparable with the fixed plant of every other statement; likewise, gross revenue must include the same items of revenue through all of the statements considered. Again, companies sometimes borrow from affiliated companies, either for short or for long terms. These transactions occur in the financial statements ordinarily under the account, "Due Affiliated Companies." This account, obviously, must be carefully scrutinized in order to determine its true nature. If the borrowing is really current, the item will occur in succeeding statements intermittently and in varying amounts. If, on the other hand, the borrowing is permanent, the item will appear in successive statements and in relatively constant amounts. As in the case of accounting inconsistencies, absolute accuracy is impossible of attainment; but, again, the errors remaining after all possible adjustments have been made, tend to be

offsetting and not cumulative in their effects.

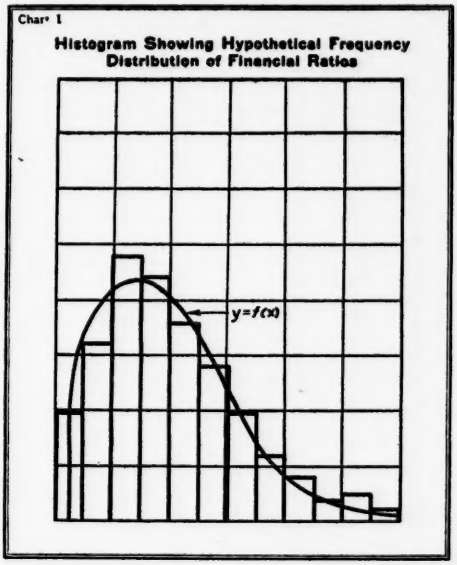
### *Methods of Analyzing Data*

Once the requisite standardization of the financial statements has been completed, the data are ready for analysis. A method must then be selected by which the required data can be extracted. The method selected will depend upon the purpose of the study. For some types of study, abstract mathematical averages may be desirable, but if the purpose of the study is the determination of representative data, such averages are of no value. A simple arithmetic average, for instance, yields a figure which lends itself readily to algebraic treatment; but it is an abstract concept. It may or may not be applicable to any of the companies in the sample. If it does apply to any of the companies, it still is not the representative average, unless the particular distribution in hand is normal. In this special case, it is representative by virtue of the fact that in such a distribution the arithmetic average is coincident with the mode. It is ordinarily of no value in determining representative economic data.

In order to extract the representative figure, it is necessary to consider the distribution of all the items within each sample of the data. That is, it is necessary to obtain an actual count of the number of times the value of a particular variable happens, for example, to be five, six, or seven, and to analyze the frequencies in this distribution.

In the determination of the representative current position of the public utility industry, for example, the first step consists in the calculation of the current ratios of a large number of operating companies, picked at random.[4] A frequency distribution of these current ratios, grouped into proper class intervals, must be drawn up. From this distribution an histogram can be graphed (Chart I). This histogram pictures the observed distribution and clearly indicates the class of highest frequency. From this frequency then, by the use of an approximation formula for calculating the mode, the desired ratio can be closely determined (Chart II). This ratio, however, can be arrived at more rigorously. If a curve, $y = f(x)$, is fitted to the histogram so that the area under

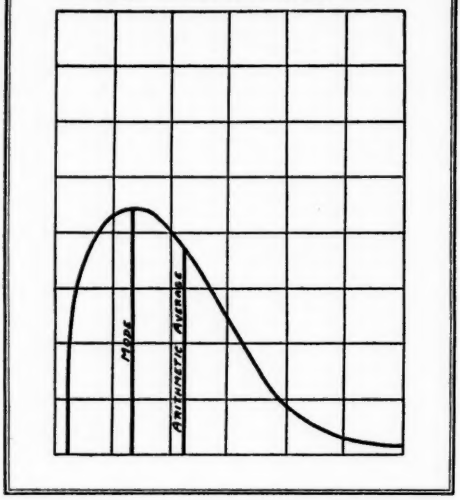
Chart I




[4] Alexander Wall, in his *Analytical Credits*, has made a quantitative study of the current ratios of industrials. This study was made to serve as a credit gage for bankers. For that purpose it is doubtless valuable, but for the purpose of determining the representative current position of any single industry, it is not sufficient. In most cases, his samples would not stand the test of adequacy. Similar criticism applies to Bliss's studies in his *Financial and Operating Ratios*. The samples, chosen from various industries, in both of these studies are not large enough to yield pictures of actual conditions in those industries. Consequently, they cannot yield the respective representative current positions.

Chart II

Discrepancy between Modal and Arithmetic Averages in Skewed Frequency Curve




the curve is equal to the area of the sectors of the histogram, the maximum ordinate of this curve would yield a closer approximation of the representative current ratio (see Chart II). The greater accuracy thus attained is based on the theory of frequency curves. If, for example, an histogram of the current ratios of all operating utilities were constructed, the curve and the histogram would *tend* to become identical as the class intervals of the frequency distribution decreased in size together with an increase of observations. In other words, as the sample is increased indefinitely, the observed and the theoretical frequencies tend to become identical.

This curve, $y = f(x)$, can be fitted to the histogram by the method of moments.[5] The maximum ordinate, or the desired mode, can then readily be obtained by differentiating the equation $y = f(x)$. The result of this differentiation, $y = f'(x)$, will yield the mode at the point where the value of the second differential, $y = f''(x)$, is negative. This value is the representative ratio.

The representative current ratio is that ratio which occurs most frequently in the sample considered, and, providing that the sample is adequate, occurs most frequently in the industry. It is, therefore, truly representative of existing current ratios in the utility business. Using this same method, all the other necessary representative balance sheet and profit and loss statement ratios can be calculated. From these several studies, the representative financial structure of the public utility industry can be constructed.[6]

[5] By this method a smooth curve is fitted to the histogram. This curve represents the theoretical distribution of the data, based on the actual distribution observed in the sample which is being studied. The irregularities observed in the sample of data are thus eliminated. The theoretical justification for this elimination is based on the assumption, which can be verified empirically, that as the size of the sample is indefinitely increased, these irregularities will become submerged in the general characteristics of the universe from which the sample has been chosen. For a full discussion of the method of moments see Palin W. Elderton, *Frequency Curves and Correlation.*

Professor F. Y. Edgeworth, in *Cambridge Philosophical Transactions,* Vol. XX, 1905, says: "The law of great numbers states that if numerous observations, each obeying almost any particular law of frequency, are taken at random, their sum (or more generally linear function or approximation thereto) will approximately obey the normal law of error."

[6] Professor A. S. Dewing has said that for conservative financing "bonds should be limited in amount, so that their interest charges are no more than one-half the established net earnings. The preferred stock should be issued only to the extent that the dividends upon it absorb less than one-half the surplus remaining after the payment of bond interest." "....this should be a basal principle of public utility finance." "All other elements of the financial plan are of secondary importance compared with these fundamental principles."

There are several considerations involved in suggesting such an "ideal" financial plan, not based on an adequate quantitative study of industry itself. In the first place, if such a quantitative study is not basic to setting up the plan, it is difficult to

The representative financial structure is not one to which all individual companies would conform. It is, however, a measure with which individual companies may be compared. A great divergence from this structure does not necessarily indicate poor financial management. It does mean, however, that the divergence must be explained. Some special circumstance must be found to account for a great difference between the individual company and the representative structure.

### *Useful Purposes of Study*

The financial structure of public utilities doubtless could be improved. To the extent that this financial structure is improved, to the same extent do the ratios calculated by this method approach the ideal. The representative ratios yield, however, a useful basis for comparison.

The representative tends to become the ideal under existing conditions. Economic organization is in a continuous state of flux. As economic conditions change, the representative conditions of any industry change. If there is an ideal economic financial structure, the representative structure at any one time *tends* continually to approach that ideal under *given conditions*. An absolute, ideal financial structure could be realized only in a static state where industrial conditions have become crystallized. It is impossible, therefore, to set up absolute financial criteria which would be universally valid in any particular industry over a period of time.

Through an empirical determination of the financial structure of public utility companies, as outlined above, a perspective of existing financial conditions in the industry can be gained. The theory of public utility finance, however, cannot be established solely on this inductive basis, because the data used are themselves often the result of makeshift policies rather than conscious attempts to finance the companies with a view of attaining sound financial structures. But such a study may lead to a modification of financial theory in the light of the actual position of the industry. A consideration of the nature of these characteristics together with the financial solutions as they have been worked out by the individual companies will serve as a basis for the necessary modifications of general financial theory. This modified theory will then present the fundamental principles of public utility finance.

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justify it. The arguments are that expediency and facts can be marshalled against it. The foundation of any proposal must rest on the nature of, and the conditions surrounding, the industry itself. In the second place, it is difficult to say to just how many operating companies the "ideal" plan is applicable. It must in itself contain room for a great many variations calculated to fit the special circumstances under which a large number of companies operate, but these necessary variations cannot be understood or calculated until the actual conditions of the companies relative to the industry as a whole are known.

# WHERE DRAINAGE PAYS

*By* E. R. JONES

ON one side of the picture we see a vast expanse of marsh land sodded with sedge grass or freckled with cat-tails. Perhaps scrubby dog-wood or little willows are crowding out the grass. Wild ducks hover overhead and finally alight in the wild rice at the water's edge. Cattle have tried to pasture on these lands until the surface is broken up by bogs, knee-high. Weeds finally grow there to the exclusion of everything else—a good place for the hay fever victim not to go. Wobbly fences mark some of the "forty lines" and occasionally enclose an area from which the cattle are kept out. Here wild hay may be cut if the season is not too wet, but such hay is tough and not very nutritious. Carried out on poles, and stacked at the edge of the marsh, it is hauled away the next winter for bedding, packing, or feed. Poor wages are all that the haymaker gets for his work. The owner of the land commonly gets nothing at all, yet he pays taxes upward of 25 cents an acre a year on wild hay meadow and brushy marsh alike. He is actually paying out good money each year for the privilege of investing in some bad marsh lands.

On the other side of the picture we see in the broad level corn belt of Illinois, Iowa, and southern Wisconsin and Minnesota, row on row of tasseled corn taking the place of the cat-tail. Alsike clover thrives where once grew the sedge. Artificial drainage has made the land dry enough to cultivate with safety; a 20-inch breaking plow has turned over the bogs and covered the brush; and tough fibrous peat has decomposed into a black, waxy muck. This land lets for $15 an acre a year and sells for $200 an acre. Before drainage the organic matter in these soils decomposed into plant food but slowly. It was pickled in water and soil acids. After drainage the acids leach out and bacteria come in to make food for cultivated plants.

The question is, How much of this type of land can we unpickle with profit to the individual and to the commonwealth?

There is no type of land reclamation that is more tempting to the man who delights in making a cornfield blossom where nothing of marketable value grew before. There are no stumps to pull, no stones to carry; merely drains to install and crops to harvest. No wonder this has been a fertile field for promoters, honest and dishonest.

### *Drains, Then Brains*

Some drained lands are more foolproof than good upland soils. Others require special treatment and management.

It is proverbial that the tiled swales in the cornfields of the corn belt require less manure, yield to cultivation earlier in the spring, and grow better crops than the ridges between them. These soils are well supplied with both mineral and organic matter.

Not so with the peat and muck from one to twenty feet deep on the rest of the marshes! There, management is everything. While it doesn't cost as

much to supply the deficiency of phosphorous and potash to the peat as it does to supply the necessary phosphorous, nitrogen, and organic matter to the uplands, it takes a good head to give the right treatment to each marsh. The same peat will fail under one set of conditions and succeed under others. The peat beds at Kalamazoo, Michigan, famous for their celery, the Hollandale Farms at Albert Lea, Minnesota, which this year are shipping trainloads of three-dollar potatoes into Iowa, and the University Marsh at Madison which for 10 successive years has raised 17 tons of green corn per acre, are no better physically, chemically, or geographically than the Troy Marsh of 3,000 acres in Walworth County, Wisconsin. Yet half of the latter, drained about 10 years ago, is lying idle, and the other half is failing at general farming. It will fail until its operators specialize on the particular crops and particular methods adapted to that marsh, and until a good market is created for those crops. Markets, crops, tools, disc plows instead of mold board plows, heavy rollers instead of plankers—everything is different on peat and muck. Yes, and the people too! It is the industrious Hollander and his family, working with hand and head, that brought success to Kalamazoo and Albert Lea.

### *Community Outlets and Supplemental Drains*

Sluggish rivers, winding creeks, and flat water courses extending through several farms, townships, or counties, require community effort for improvement. Drainage through the other fellow's land can be accomplished only by unanimous consent of all landowners concerned or by state drainage laws. Over 40 of the 48 states have such laws giving courts the right to sanction and direct organizations for the construction of outlet drains and to levy special taxes against the benefited lands to pay for such drains. The projects are initiated by a petition of the landowners to the court. In some states the petition of a single landowner is sufficient to bring the proposed project to the attention of the court. Other states require a majority of the landowners or a majority of the acreage on the original petition. Wisconsin's more stringent law, of the last-named type, built on the experience of other years, limits the weight of any one signature to 320 acres in determining the sufficiency of the petition. This curbs the power of the large landowner as against the smaller ones.

Community drainage projects may be divided into two general classes. First, the projects that furnish outlets for the wet fields on farms now being farmed. Second, the projects on large undeveloped marshes that seek to furnish outlet drains for farms to be created and operated by big companies or sold to settlers in small parcels. Those of the first class are to be commended as laudable enterprises so long as they contribute to the efficiency of a majority of the existing farms connected therewith. Those of the second class are to be commended when they contribute good and needed farms to the state and nation. This means careful selection as to time, place, and manner of drainage.

The demand for game preserves is also a factor. In the near future, the demand for such preserves may become so acute as to induce sportsmen to buy or lease large tracts of marsh land for game preserves or shooting grounds, thus competing with agriculture for the use of these lands.

TABLE I. LATERALS AND DRAINS CONSTRUCTED THROUGH ORGANIZATIONS, 1920*

| STATE | Percentage of Land in Organized Drainage | Cost of Organized Drains | Cost per Acre | Organized Laterals Provided | Mean Depth of Laterals in Feet |
|---|---|---|---|---|---|
| Illinois | 10.9 | $51,000,000 | $13.00 | 53% | 4.8 |
| Indiana | 39.4 | 32,000,000 | 3.50 | 39 | 5.1 |
| Michigan | 26.4 | 25,000,000 | 2.50 | 20 | 4.3 |
| Minnesota | 17.8 | 44,000,000 | 4.50 | 71 | 4.9 |
| Ohio | 31.1 | 31,000,000 | 4.00 | 27 | 3.9 |
| Wisconsin | 2.2 | 4,564,000 | 5.50 | 89 | 0.5 |

*Data from *United States Census*, 1920.

About 65,000,000 acres in the United States have been assessed for the construction of outlet drains. They are organized into 60,000 projects from a few hundred acres to nearly a million acres in size. About half of this area lies in the North-Central states, Ohio, Indiana, Michigan, and Minnesota predominating. Nearly 40% of the total area of Indiana is in drainage organizations.

Indications are that outlet drains have been provided for one-third of the wet land in the United States, but that some of these outlets are inadequate and that adequate supplemental drains have not been constructed on all of the areas included in the community projects.

Drainage commissioners, appointed by the courts to direct these projects, have properly given the landowners their choice in the matter of supplemental drainage. They are empowered, where the landowners desire it, to construct the supplemental drains also and to levy a correspondingly high tax on the lands so benefited. More often, the landowners have preferred to put in their own individual supplemental drains and to pay, in their taxes, for the outlet drains only.

### *State Drainage Policies*

Table I indicates the policy of different states in the matter of lateral or supplemental drainage as of 1920. No laterals are reported on 80% of the area included in the organized drainage projects of Michigan, and the laterals that were installed as community drains were shallow compared with those in other states. In Illinois a greater percentage of the drained lands were given laterals, and a larger percentage of these were of the large tile rather than open ditch type. This accounts for the higher cost per acre. In all of the states the lands not provided with laterals to feed the main drain are provided with such laterals by landowners themselves, individually or in cooperation with neighbors by mutual agreement. In Wisconsin less individual work was necessary because of the policy of giving every farm in the project direct access to either the main drain or a lateral.

These outlet drains, both main and lateral, consist of open ditches from 3 to more than 100 feet wide at the bottom, or large tile up to 48 inches in diameter. The latter are more expensive, but waste less land and are more permanent. Seldom does an organization put in community laterals less than 8 inches in diameter.

The internal drainage required by the individual farms consists largely of tile drainage. The amount of tile depends upon the depth of the drain, the nature of the soil, the seepage from surrounding upland, and the kinds of crops to be raised. For the grasses, less drainage is required than for potatoes. Land between two district laterals that are 6 feet deep or more and 80 rods apart commonly requires no additional drainage. This is true in sandy sub-

soils free from springs. More often lands are not so fortunate as to have a district drain on both sides of them. Such lands require laterals of 5-inch tile at the rate of from 5 to 40 rods per acre, costing about $2 a rod completely installed or from $10 to $80 an acre. Many of the farms reported in Table II as having artificial drainage of this kind are in a drainage organization.

Wisconsin permits the organization of a subdistrict within a district to install all of the tile drains needed on a farm, if the owner so desires. This is to prevent a mortgagee from tying the mortgagor's hands, as he might do by refusing to increase an existing mortgage to supply the money to pay for the necessary drains. Subdistrict bonds against the farm, which take priority over an existing mortgage, may be sold to give the farmer the money he needs for the necessary improvement.

The 2.2% of Wisconsin land in drainage organizations hardly tells the whole story. It has been the policy in that state to include in drainage organizations only such 40-acre parcels as contain wet land to be benefited. Some Wisconsin districts have even divided forties into halves and quarters. Other states have included the whole catchment basin, whole counties and more, high land as well as low. They have levied almost uniform assessments against the whole acreage. This increases the size of the district and lightens the load of drainage taxes on the low land, on the theory that the upland should help bear the load because it sheds the damaging water upon the low land. The Wisconsin theory is that the upland, by virtue of its fortunate topography, is entitled to all of the drainage resulting therefrom. Owners of the higher lands paid more for their lands in the first instance because they had natural drainage, and if these owners were afterwards made to help pay for the artificial outlets on the lower lands, they would have to pay twice for their drainage—a manifest injustice. This theory seems sound, but has had a tendency to retard organized drainage in Wisconsin.

Unlike the irrigation projects, the drainage projects have not been subsidized by the Federal Government or aided by long-term, low-rate federal loans. It may be that the drainage projects did not need a subsidy because they have been generally near large centers of population where markets for farm products were good without long freight hauls. At any rate, except for the dikes along the lower Mississippi River, drainage has had to pay its own way. It did not even profit from the

TABLE II. FARMS NEEDING DRAINAGE, 1920*

| STATE | TOTAL FARMS | | FARMS WITH ARTIFICIAL DRAINAGE | | FARMS NEEDING ARTIFICIAL DRAINAGE | |
|---|---|---|---|---|---|---|
| | Number | Acres | Number | Acres | Number | Acres |
| Illinois | 237,000 | 32,000,000 | 99,000 | 11,247,000 | 33,000 | 1,229,000 |
| Indiana | 205,000 | 21,000,000 | 111,000 | 8,308,000 | 66,000 | 1,717,000 |
| Michigan | 196,000 | 19,000,000 | 67,000 | 3,156,000 | 64,000 | 2,070,000 |
| Minnesota | 178,000 | 30,000,000 | 53,000 | 2,993,000 | 74,000 | 3,504,000 |
| Ohio | 257,000 | 23,000,000 | 130,000 | 7,365,000 | 85,000 | 2,015,000 |
| Wisconsin | 189,000 | 22,000,000 | 22,000 | 658,000 | 52,000 | 1,839,000 |

*Data from *United States Census*, 1920.

proceeds of the sale of state swamp lands, although the Federal Act of 1850 dedicated such proceeds to the drainage of such lands. The states broke their pledge. They used these moneys chiefly for schools, roads, and bridges, and left the landowners to dig themselves out of the mire. In Wisconsin alone over $3,000,000 of swamp land funds, to say nothing of the interest accumulating since 1850, has been diverted by the legislature to other uses. If this principal, compounded at 4% until 1930, were then available, it would pay for the outlet drains for every acre of wet land in the state.

### *Old Projects Inherited*

Some of the drainage projects organized from 15 to 25 years ago in central Wisconsin and northern Minnesota have been inherited by the present generation as a liability. In Minnesota the county guaranteed the payment of the drainage bonds, and, in the poorer districts, the county has had to pay. In Wisconsin the county did not stand back of the bonds. Each project had to stand on its own feet. In both cases the promoters have lost their money due to their own mismanagement. In Minnesota the delinquent land belongs to the county. In Wisconsin the land belongs to the bondholders, if it belongs to anybody. They have not foreclosed on their bonds and taken title to the land for the reason that they do not want the land.

It is easy to tell where the original mistake was made. Promoters threw upon the market too much new land at one time, with poorly designed ditches and no colonization plans at all.

If the first district of 50,000 acres had been thoroughly drained, developed, farmed, and sold before the land in the second district was thrown into competition with it, the first, the second, and each subsequent district would have had a chance to succeed, and it is not unlikely that there would be today 2,500 contented, prosperous farmers instead of 350 in the drainage districts of central Wisconsin.

The Wisconsin lands delinquent in drainage taxes are orphans. In 11 of the districts of central Wisconsin, organized prior to 1907 and containing 409,000 acres, 175,000 acres were subject to tax deed on June 1, 1924, with no takers. Drainage taxes of $231,000 and $90,000 of general taxes plus the penalties were due against these lands.

The original indebtedness of these districts was $2,558,000, which has been reduced by annual payments to $1,226,000. Strangely enough the second half of this indebtedness seems harder to pay than the first.

To get the story of the central Wisconsin drainage districts, we must go back to the dry season of 1894 when fires ran over township after township of parched peat on the marshes and left them mellow as a garden. They were dry enough to cultivate and nobody seemed to think it would ever rain again. Some areas were planted in 1895, another dry year, and yielded bountiful crops of buckwheat, rye, and potatoes. Stories of the wonderful fertility of these lands spread, and land grabbing began. Much of the area was subject to tax deed, and acquisition was easy to the first comers. Large areas fell into the hands of a few men.

Soon the wet seasons returned and crops failed. The need of drainage was evident. Wisconsin had an old drainage district law under which only one or two owners of large tracts were required to sign the original petition. Plans were made on paper and a lenient

court, desirous of promoting the general welfare of a sparsely settled county, approved the sale of bonds for the construction of ditches. The ditches were dug and the project settled down to wait for settlers who never came. Many who did come did so to their sorrow because the promoters charged them $40 an acre for the land without improvements and without helpful service to accompany the contract.

In spite of their handicaps, statements from the settlers with which the University of Wisconsin College of Agriculture is in touch, indicate that they are reasonably prosperous. Profiting by the experience of those who had to abandon their farms, these farmers are using methods adapted to these lands and are making progress. What they need above all else is more neighbors. The sparse settlement makes it difficult to maintain schools and roads.

These farmers are paying their taxes. In 1924 the current drainage tax levy in the 12 districts was $140,000. Half of this was for interest and the other half for principal. The receipts were $91,000, paying all of the interest and part of the principal but leaving an increased delinquency of $49,000 for the year. The load on the delinquent lands is increasing each year and, without relief to break the deadlock, their chances for redemption are becoming more remote.

An examination of the delinquent lands shows that they are of as good quality as those upon which the taxes have been paid. With a few exceptions, it was the landowner's pocketbook and not the quality of the soil that governed the payment of the taxes. The non-resident owners have not paid their taxes.

In December, 1924, I submitted to the Attorney General of Wisconsin a plan for the redemption of the delinquent lands. While sound economically, it had too many legal defects to be workable. It may suggest to the bondholders a way by which they can put these lands into good hands.

Briefly it was this: Let the state of Wisconsin recall some of the Swamp Land Fund from the channels to which it was misappropriated and use it as a revolving fund to redeem the delinquent lands, the state taking deed to the land. It would take $960,000 to pay the delinquent drainage taxes on the 175,000 acres and to pay the bonds thereon not yet due. Assuming that only 100,000 acres of this area were desirable for farm land, the state could sell this to 1,000 settlers in farms averaging 100 acres in size for $10 an acre and get back its principal, leaving the other 75,000 acres for disposal at leisure. This presumes that the counties would sell at liberal discount the certificates of delinquent general taxes now due against these lands.

With constitutional limitations preventing the state from embarking on this enterprise of relief, it remains for the bondholders to do it. These soils have been mellowed and sweetened by 20 years of drainage to the advantage of the new settler in contrast to the tough peat encountered by the old. Renters of high-priced land in adjoining states, coming in groups to facilitate cooperation, would do well to consider the purchase of these farms.

If this plan is followed, it will not be long before the procession of incoming settlers will have caught up with the procession of land reclamation and new extensive reclamation will be warranted.

### *Curbing Extensive Reclamation*

On the theory that it is better to check extensive reclamation projects

before they are started than to be responsible for them after they are completed, the supervision of new drainage projects in Wisconsin exceeding 200 acres was assigned to the State Chief Engineer by the legislature in 1919. Since then the projects have been confined largely to outlets for wet lands on existing farms—intensive projects in contrast to extensive ones. Bonds of these projects sell readily.

In drainage districts, all refunding bond issues must be approved by the Commissioner of Agriculture, the Commissioner of Banking, and the Attorney General. The inclusion of the two last-named state officials has proved unfortunate. The legislature in its zeal to insure the safety of drainage bonds probably went a step too far. These officials hesitate, and wisely, to exercise this special prerogative when it may embarrass them later in the discharge of their regular duties. It would be just as appropriate and much less embarrassing for the president of one of the state normal schools to sit in judgment on the merits of drainage bonds as for an attorney general or a commissioner of banking.

Since 1919, 134 Wisconsin projects aggregating 328,002 acres, with proposed outlet drains that would cost $3,463,789, have been petitioned for by a majority of the landowners. Indefinite postponement was advised by the state engineer on 17 of these projects, with a limited postponement on some others. Construction has been completed on about half of them. Adjoining states have more construction work to show for these six years.

The reasons for advising the postponement of major projects have been as follows: (1) Unwillingness of landowners to install drains as deep as those recommended by the state engineer; (2) excessive cost in proportion to probable benefits; (3) ability to drain wet swales in cultivated fields without dredging the main creeks; and (4) weak colonization plans in the case of extensive projects. In one case the court was shown that the man who claimed to be the owner of 3,600 acres of a 5,400-acre project had such a small equity in his land that he did not command capital enough to colonize or manage it properly. The court is holding this project up until the land gets into stronger hands. It is better to let the land lie idle before the outlet drains are constructed than afterward when interest on the drainage bonds makes the carrying charge cumulative.

Even in the intensive drainage projects the financial status of the majority of the landowners is a factor to be considered. It may be that the indebtedness on a farm is such that any increase would mean bankruptcy. In such cases the proper thing is to sell the wet land to some one who is able to drain it, making two farms instead of one. It is better to sell marsh land at a sacrifice than to hold it in an unproductive state.

The Wisconsin Drainage District Law of 1919 with its amendments requires the State Chief Engineer, through the State Drainage Engineer, to approve of all engineers employed by drainage districts, to approve the plans, and to review the assessments against the lands. The College of Agriculture of the University of Wisconsin cooperates by making a soil survey of the area.

The Wisconsin Farm Drainage law, also passed in 1919 to govern the smaller drainage organizations, has the same safeguards. Under this law most of the projects now organize. In fact, the legislature of 1925 passed an amendment requiring all new projects to proceed under this law.

*Drainage Reduces Production Costs*

The drainage of the wet spot in the cultivated field is the most profitable kind of drainage. The banker who holds a mortgage on a farm with such a field does well to increase his loan sufficiently to construct the required drain. Perhaps it is merely a line of tile 40 rods long, costing $80 and saving the crop on an acre of land. The 40 bushels of corn thus saved is clear profit, and more. It is easier to cultivate the low-lying acre when dry than to dodge it or wade through it with a plow or harrow when wet. Yet some of our bankers fail to see that this investment of $80, saving $40 worth of corn and labor annually, pays an annual dividend of 50%. In fact, when it is remembered that $4.80 is all it costs to hire the $80 for a year at 6% and the returns on the investment are almost 10 times as great as the interest charge, it is fair to call it a dividend of 1,000% each wet year, during the life of the drain, which is 100 years or more. Tile drains installed in New York in 1833 indicate that they are going to work better the second hundred years than they did the first.

Drainage makes possible the substitution of better lands for the lighter lands now being cultivated. It is said that there are 90 vacant farms in Waupaca County, Wisconsin. The uplands are of the light order and the marshes of that county have not been drained. May it not be fair to suggest that the reason these farms are vacant is that they are in need of the drained marshes to supplement the sandy upland by raising forage crops? That is exactly what the sand land farmers at the edge of the Portage County Drainage District have done, much to their advantage. Gradually, they are receding from the sandy lands and depending more upon the drained marshes for corn to fill their silos. That is real progress.

Drainage may increase the products of a farm without increasing the cost of operation a like amount. The farmer with 100 acres of land, but with buildings and equipment sufficient for 120 acres, needs 20 acres more land to attain his maximum efficiency. The question is: Shall he drain the 20-acre marsh at the back end of his farm, or rent 20 acres of tillable land from his neighbor across the road?

Unless the rent he would have to pay is comparatively low, it is better for him from the financial point of view to make a permanent improvement on his own farm by draining his own marsh than to rent somebody else's high land and haul manure on it.

*Expansion through Land Drainage*

It cannot be assumed that the tillable area of the United States has reached a stationary figure. There must be some expansion to keep pace with increasing population. The increased production of each acre now used alone cannot satisfy the increasing demand for food. Some new lands, primarily adapted to agriculture, favored by quality of soil and nearness to markets, will be needed in the rational progress of the next decade and those following. Among these new lands, those susceptible to drainage are an important factor, and the door for their timely reclamation must be kept open.

Land drainage, reforestation, and game preservation are not inimical to each other when an intelligent program is followed by each. Let each be practiced on lands that are especially suited to that use, and under conditions that are fair to all.

# PUBLIC UTILITY FINANCING: A REVIEW OF 1925

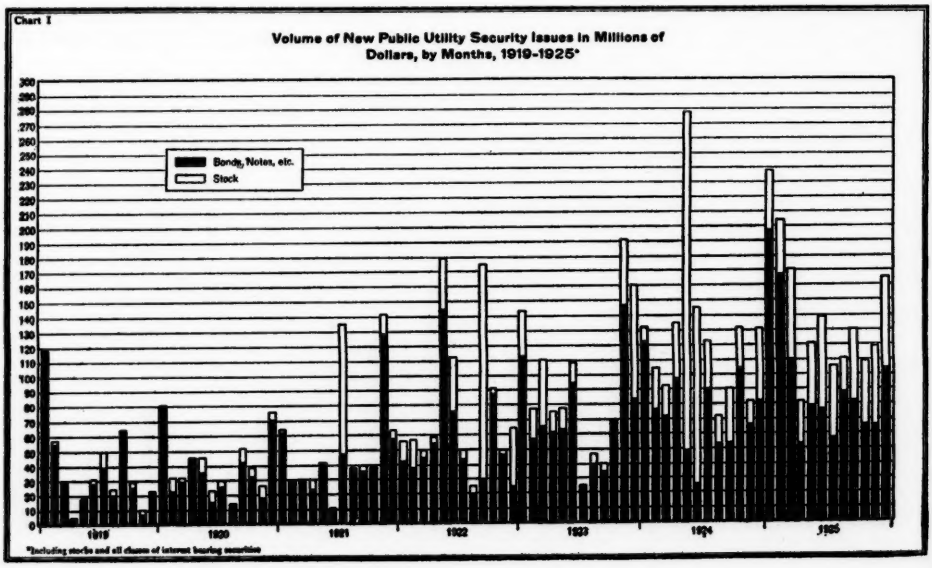
*By* HERBERT B. DORAU

THE very rapidly expanding public service industries have become a most important source of demand for capital. In 1924, public utility industry financing, excluding steam railways, reached the unprecedented total of $1,529,639,827, representing 40% of the total corporate financing for that year.[1] Including steam railway financing for the year 1924, the total reached $2,469,936,796, or 64% of all corporate issues of record.

But during the year 1925 even this sum was exceeded. Public utilities, excluding steam railways, issued a total of $1,725,033,504, or nearly $200,000,000 in excess of the total for 1924. Other corporate financing, however, increased in volume at an even more rapid rate so that public utility issues represented 36% of all corporate issues of record during this year as compared with 40% in 1924. Steam railway issues were not in the same large volume in 1925 as in the year 1924, representing only 11% of the total volume of corporate financing of record as compared with 24% in 1924. Real estate financing of record represented a large part of the increased volume of "other corporate" financing during 1925, having more than doubled the volume of 1924 and representing, in 1925, 16% of all corporate issues of record compared with 9% in 1924.

An increasing number of foreign

[1] Based on the reports of new capital flotations in the *Commercial and Financial Chronicle.*



public utility loans are being offered in the United States. During the year 1925, issues other than those originating in the United States and Canada amounted to $145,500,000, or 8.4% of the total volume of public utility issues, a marked increase over 1924 when foreign issues represented only 0.5% of the total. German and Japanese loans represented the bulk of these foreign utility issues in 1925.

Again in 1925 as in 1924 the volume of public utility securities issued for refunding purposes was low. Out of the total of $1,725,033,504, 86.7%, or $1,496,098,404, was for new capital and only $228,935,100 for refunding purposes (Table II).

The proportion of public utility financing which was for short periods (5 years or less) and for longer periods has varied widely during the last 7 years. In 1919 and 1920 short-term bonds and notes represented 55%, and 44% of the total volume of issues, and in 1922 and 1923 only 5% and 6% respectively. In 1924 and 1925 the proportion of short-term bonds and notes remained practically the same, at about 8% of the total.

The proportion of stock issues to total volume was slightly lower in 1925 than in 1924 but yet remained well above 30%, and represented in excess of $500,000,000 of the total par value issued (Table II). In 1925 preferred stock issues represented 61.5% of the total volume of stock issued compared with 45.6% in 1924.

### *Volume of Financing by Classes of Utilities*

By dividing public utilities[2] into seven classes, the volume of new securities issued can be distributed to show the relative importance of each group. Thus telephone and telegraph companies account for 16.4% of the total of domestic public utility issues, the gas utilities

[2] Steam railways are not here included under the term "public utilities."

TABLE I. VOLUME OF PUBLIC UTILITY FINANCING, 1919-1925*

| | 1919 | 1920 | 1921 | 1922 | 1923 | 1924 | 1925 |
|---|---|---|---|---|---|---|---|
| January | $119,368,600 | $ 80,431,000 | $ 65,760,400 | $ 55,449,650‡ | $ 145,879,286 | $ 133,532,000 | $ 237,724,500 |
| February | 56,943,000 | 32,875,940 | 29,563,000 | 56,663,525 | 78,706,600 | 105,997,700 | 205,324,225 |
| March | 29,495,600 | 32,625,500 | 30,307,090 | 51,747,000§ | 112,398,800 | 93,510,250 | 171,557,000 |
| First Quarter | 205,807,200 | 145,932,440 | 125,630,490 | 163,860,175 | 336,984,686 | 333,039,950 | 614,605,725 |
| April | 6,049,000 | 45,508,000 | 30,424,000 | 59,979,000 | 76,135,000 | 134,284,000 | 82,400,200 |
| May | 18,079,000 | 45,597,900 | 42,300,000 | 179,633,800 | 78,384,950 | 278,639,000 | 122,935,330 |
| June | 31,344,000 | 23,944,400 | 11,250,000 | 115,131,500 | 110,406,300 | 145,507,250 | 141,418,625 |
| Second Quarter | 55,472,000 | 115,050,300 | 83,974,000 | 354,744,300 | 264,926,250 | 558,430,250 | 346,754,155 |
| July | 49,251,200 | 30,085,000 | 136,900,500 | 51,959,400 | 25,080,000 | 124,364,512 | 107,853,335 |
| August | 24,081,500 | 13,708,800 | 38,911,000 | 25,693,220 | 47,457,050 | 74,131,400 | 111,538,800 |
| September | 64,835,000 | 52,647,000 | 40,266,000 | 175,809,500 | 40,715,120 | 91,468,000 | 131,081,232 |
| Third Quarter | 138,167,700 | 96,440,800 | 216,077,500 | 253,452,120 | 113,252,170 | 289,963,912 | 350,473,367 |
| October | 29,120,000 | 39,095,300 | 39,533,000† | 92,016,750 | 70,634,500 | 133,280,480 | 109,590,162 |
| November | 9,979,750 | 24,770,650 | 142,266,880 | 51,700,800 | 191,770,552 | 82,017,835 | 121,445,795 |
| December | 23,725,000 | 75,533,060 | 63,603,350 | 64,659,750 | 160,828,000 | 132,907,400 | 182,164,300 |
| Fourth Quarter | 62,824,750 | 139,399,010 | 245,403,230 | 208,377,300 | 423,233,052 | 348,205,715 | 413,200,257 |
| Year | $462,271,650 | $496,822,550 | $671,085,220 | $980,433,895 | $1,138,396,158 | $1,529,639,827 | $1,725,033,504 |

*Compiled from the monthly record of new capital flotations of the *Commercial and Financial Chronicle*. Including all classes of interest-bearing securities and all classes of stock. Security issues of steam railroads are not included.
†No detailed information is available for $150,000 out of this total.
‡No detailed information is available for $4,997,050 out of this total.
§No detailed information is available for $350,000 out of this total.

TABLE II. PERCENTAGE DISTRIBUTION OF NEW PUBLIC UTILITY SECURITY ISSUES, BY CLASSES OF SECURITIES AND PURPOSE OF ISSUE, 1919-1925*

| Classes of Securities | 1919 | 1920 | 1921 | 1922 | 1923 | 1924 | 1925 |
|---|---|---|---|---|---|---|---|
| Total—All Classes | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| New Capital | 60.3 | 77.0 | 73.3 | 74.1 | 78.0 | 86.7 | 86.7 |
| Refunding | 39.7 | 23.0 | 26.7 | 25.9 | 22.0 | 13.3 | 13.3 |
| Long-Term Bonds, Notes, etc. | 37.6 | 43.9 | 70.5 | 64.5 | 71.3 | 57.5 | 59.5 |
| New Capital | 25.3 | 40.3 | 52.2 | 44.0 | 51.7 | 47.2 | 49.7 |
| Refunding | 12.3 | 3.6 | 18.3 | 20.5 | 19.6 | 10.3 | 9.8 |
| Short-Term Bonds, Notes, etc. | 54.6 | 44.0 | 10.8 | 4.7 | 5.7 | 8.4 | 8.7 |
| New Capital | 27.4 | 25.6 | 3.7 | 2.0 | 4.3 | 7.0 | 6.9 |
| Refunding | 27.2 | 18.4 | 7.1 | 2.7 | 1.4 | 1.4 | 1.8 |
| Stock | 7.8 | 12.1 | 18.7 | 30.8 | 23.0 | 34.1 | 31.8 |
| New Capital | 7.6 | 11.1 | 17.4 | 28.1 | 22.0 | 32.5 | 30.2 |
| Refunding | .2 | 1.0 | 1.3 | 2.7 | 1.0 | 1.6 | 1.6 |

*Compiled from the records of the *Commercial and Financial Chronicle.*

(single service) only 3.5%, and the gas and electric (composite) companies 39.7% of the total, purely electric (single service) companies account for 21.4% of the total issues while composite railway and electric companies issued only 5.4%, electric railway companies (single service) 2.3%, and water companies 2.8%.

Comparison of this distribution with that for previous years may be made by reference to Table III. As far as a comparison with 1924 is concerned, it is to be observed that the proportion of telephone and telegraph utility financing decreased slightly. While the percentage for gas companies (single service) rose from 1.6% to 3.5%, gas and electric companies (composite) increased their proportion from 35.9% to 39.7%; exclusively electric companies decreased from 27.6% to 21.4%. The proportion of railway and electric (composite) companies decreased from 8.1% to 5.4%, as did exclusively electric railway companies from 6.8% to 2.3%. The proportion of financing attributable to water utilities increased

TABLE III. PERCENTAGE DISTRIBUTION OF NEW PUBLIC UTILITY SECURITY ISSUES ACCORDING TO UTILITY CLASS OF ISSUING CORPORATION, 1919-1925*

| Utility Class | 1919 Percentage of Total | 1920 Percentage of Total | 1921 Percentage of Total | 1922 Percentage of Total | 1923 Percentage of Total | 1924 Percentage of Total | 1925 Percentage of Total |
|---|---|---|---|---|---|---|---|
| Telephone and Telegraph | 26.8 | 12.2 | 29.7 | 24.9 | 18.7 | 17.9 | 16.4 |
| Gas | 4.9 | 2.2 | 2.2 | 8.5 | 8.0 | 1.6 | 3.5 |
| Gas and Electric | 17.4 | 38.6 | 24.2 | 20.7 | 25.6 | 35.9 | 39.7 |
| Electric | 15.7 | 25.4 | 14.1 | 20.5 | 32.8 | 27.6 | 21.4 |
| Railway and Electric | 26.6 | 17.7 | 25.9 | 21.1 | 9.7 | 8.1 | 5.4 |
| Railway | 7.7 | 2.7 | 2.7 | 2.8 | 2.4 | 6.8 | 2.3 |
| Water | .9 | 1.2 | 1.2 | .8 | 2.8 | 2.0 | 2.8 |
| All Utilities | 100.0 | 100.0 | 100.0 | 100.0† | 100.0‡ | 100.0§ | 100.0‖ |

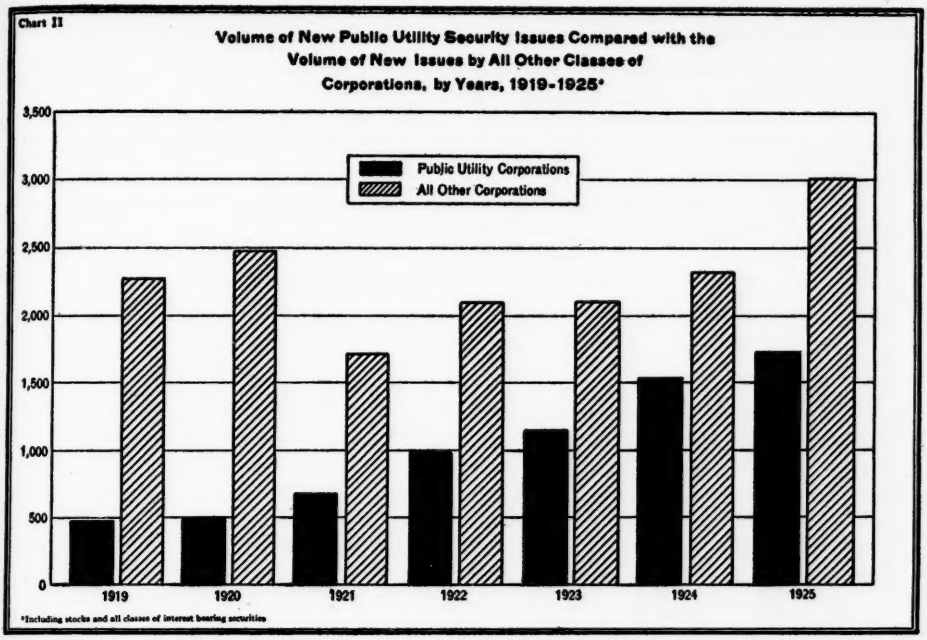
*Including all classes of interest-bearing obligations and all classes of stock. Security issues of steam railways are not included. Compiled from the monthly record of new capital flotations of the *Commercial and Financial Chronicle.*

†Steam utility issues of $6,000,000 and representing .7% of all issues are included in the total. Foreign utility issues of less than .1% included.

‡Steam utility issues of $300,000 are included in the total.

§Steam utility issues of $2,314,000 and representing about .1% of all issues are included in the total. Foreign utility issues of .5% included.

‖Foreign utility issues to the amount of 8.4% of total and steam utility issues to amount of .1% are included in total. If foreign utilities were excluded, the distribution of security issues among the various classes would be as follows: Telephone and Telegraph, 17.9%; Gas, 3.9%; Gas and Electric, 43.3%; Electric, 23.4%; Railway and Electric, 5.9% Railway, 2.5%; Water, 3.1%.




slightly from 2.0% in 1924 to 2.8% in 1925.[3]

*Extent of Holding Company Financing*

It was previously pointed out that only a small portion (13.3%) of the year's volume of new security issues was for refunding purposes. Considerable duplication, however, probably does develop because of holding and operating company relationships. With this possibility in mind, a segregation of new securities issued into three classes was made: (1) purely holding companies, (2) purely operating companies (that is, those which do not hold securities of companies whose properties they do not operate) and (3) those companies which are mixed in character, being at the same time operating companies and also controlling operating companies through security ownership. Out of the total volume of domestic public utility issues of all types in 1925, 45.7% was originated by strictly operating companies, 28.3% by companies of mixed character, and 26% by holding companies.

*Average Yield at Offering Price of All New Public Utility Security Issues in 1925*

The average dollar borrowed by public utilities of the United States and Canada in 1925 paid the lender 5.58% and the average yield per issue in that year was 5.81% (Table IV). The average yield at offering price of new public

[3] The effect of the increased volume of foreign utility issues in 1925 amounting to 8.4% upon these percentages is to increase the smaller proportions slightly and the larger ones materially. Thus gas and electric utilities accounted for 39.7% of the total but 43.3% when excluding foreign issues, and telephone and telegraph utilities 17.9% instead of 16.4%.

TABLE IV. WEIGHTED AND SIMPLE AVERAGE YIELD AT OFFERING PRICE OF NEW PUBLIC UTILITY SECURITY ISSUES, 1919-1925

| Year | ALL TYPES OF SECURITIES | | | | | | BONDS AND NOTES ONLY | |
|---|---|---|---|---|---|---|---|---|
| | All Maturities | | Long-Term | | Short-Term | | | |
| | Weighted Average Yield | Simple Average Yield | Weighted Average Yield | Simple Average Yield | Weighted Average Yield | Simple Average Yield | Weighted Average Yield | Simple Average Yield |
| 1919 | 6.55 | 6.68 | 6.21 | 6.25 | 6.78 | 7.03 | 6.54 | 6.67 |
| 1920 | 7.55 | 7.64 | 7.52 | 7.59 | 7.59 | 7.68 | 7.53 | 7.62 |
| 1921 | 7.13 | 7.47 | 7.11 | 7.42 | 7.27 | 7.66 | 7.11 | 7.45 |
| 1922 | 6.06 | 6.34 | 6.03 | 6.32 | 6.39 | 6.53 | 6.03 | 6.34 |
| 1923 | 6.04 | 6.31 | 5.99 | 6.26 | 6.73 | 6.72 | 6.11 | 6.29 |
| 1924 | 6.03 | 6.14 | 6.04 | 6.16 | 5.97 | 6.04 | 5.98 | 6.12 |
| 1925 | 5.58 | 5.81 | 5.66 | 5.83 | 5.55 | 5.86 | 5.56 | 5.78 |
| 1st Quarter | 5.46 | 5.78 | 5.65 | 5.81 | 5.32 | 5.77 | 5.48 | 5.79 |
| 2nd Quarter | 5.72 | 5.87 | 5.74 | 5.86 | 5.58 | 5.94 | 5.65 | 5.82 |
| 3rd Quarter | 5.53 | 5.77 | 5.50 | 5.77 | 5.68 | 5.73 | 5.45 | 5.76 |
| 4th Quarter | 5.77 | 5.82 | 5.77 | 5.80 | 5.76 | 6.02 | 5.65 | 5.77 |

utility security issues reached its highest point during the fourth quarter of 1920. Since that time there has occurred a sharp and practically uninterrupted decline extending into the fourth quarter of 1922. The years 1923 and 1924 were a period of irregular movement which is in contrast to the conditions

TABLE V. DISTRIBUTION OF NEW LONG-TERM PUBLIC UTILITY BOND AND NOTE ISSUES ACCORDING TO INTEREST YIELD AT OFFERING PRICE, 1919-1925

| Percentage Yield | NUMBER OF ISSUES | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1919 | 1920 | 1921 | 1922 | 1923 | 1924 | 1925 |
| 4.26—4.50 | ..... | ..... | ..... | ..... | ..... | ..... | 4 |
| 4.51—4.75 | ..... | ..... | ..... | 2 | 1 | ..... | 4 |
| 4.76—5.00 | ..... | ..... | ..... | 2 | 1 | 5 | 13 |
| 5.01—5.25 | ..... | ..... | ..... | 5 | 5 | 7 | 16 |
| 5.26—5.50 | 6 | ..... | ..... | 13 | 5 | 19 | 40 |
| 5.51—5.75 | 6 | ..... | ..... | 22 | 14 | 45 | 38 |
| 5.76—6.00 | 10 | 4 | ..... | 16 | 30 | 37 | 49 |
| 6.01—6.25 | 4 | 1 | 11 | 35 | 59 | 47 | 34 |
| 6.26—6.50 | 13 | 2 | 2 | 38 | 42 | 44 | 21 |
| 6.51—6.75 | 3 | 2 | 8 | 16 | 31 | 26 | 9 |
| 6.76—7.00 | 4 | 8 | 5 | 16 | 14 | 17 | 7 |
| 7.01—7.25 | 1 | 5 | 21 | 14 | 2 | 5 | ..... |
| 7.26—7.50 | ..... | 9 | 24 | 6 | 1 | 1 | ..... |
| 7.51—7.75 | ..... | 8 | 9 | 4 | ..... | 1 | ..... |
| 7.76—8.00 | ..... | 16 | 18 | 3 | ..... | 2 | ..... |
| 8.01—8.25 | ..... | 4 | 12 | ..... | ..... | ..... | ..... |
| 8.26—8.50 | ..... | 5 | 5 | ..... | ..... | ..... | ..... |
| 8.51—8.75 | ..... | 1 | ..... | ..... | ..... | ..... | ..... |
| 8.76—9.00 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 9.01—9.25 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 9.26—9.50 | ..... | 1 | ..... | ..... | ..... | ..... | ..... |
| Total | 47 | 66 | 115 | 192 | 205 | 256 | 235 |

during the year 1925. In this last year average yields at offering price were comparatively stable as compared with the years 1923 and 1924. The variation of the simple average yield at offering price by quarters never was more than one-tenth of 1% from the average for the year (see Chart III).

The average yields at offering price on new public utility security issues, in addition to holding very steady throughout the four quarters of 1925, reached the lowest levels of the last six years. The comparison between the year 1925 and previous years is set forth in Table IV and shows the average weighted yield at offering price of all types of interest-bearing obligations to have been 5.58% compared with 6.03%, the comparable figure for 1924. The simple average yield for all maturities declined proportionately from 6.14% to 5.81%.

### *Distribution of the Number and Volume of New Long-Term Public Utility Bond and Note Issues According to Interest Yield*

The decline in the average yield at offering price does not in some respects show the great change that has taken place during the last 7 years. During the year 1925 a number of issues at remarkably low rates were successfully sold. Limiting our analysis now only to long-term bond and note issues, it is found that 4 issues were sold to yield 4.5% or less and 8 to yield 4.75% or

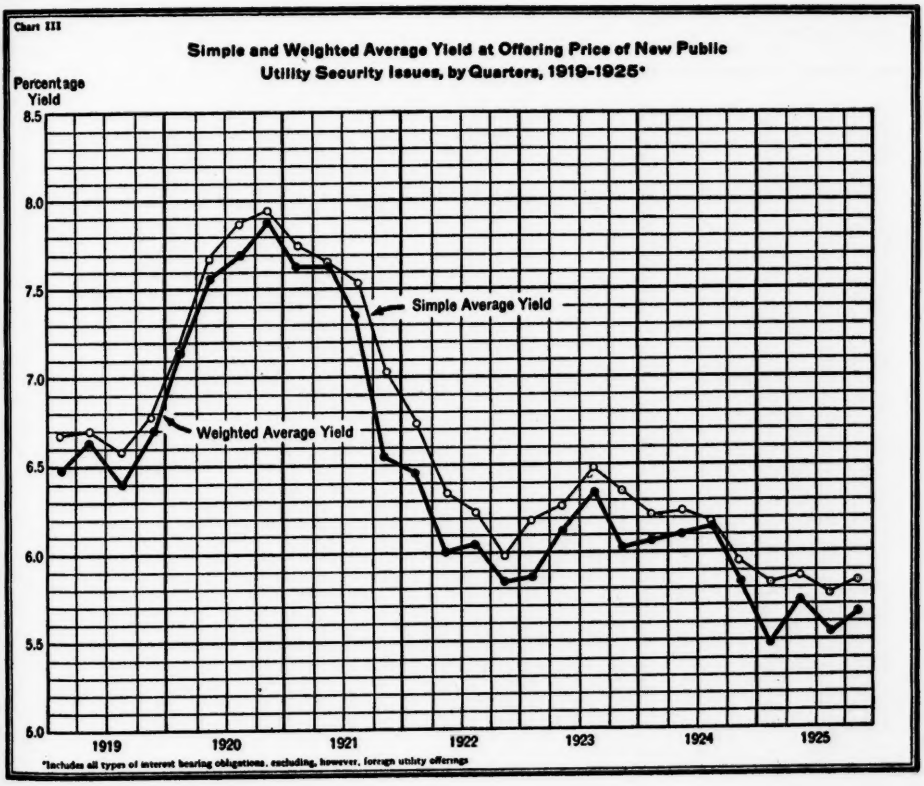


TABLE VI. DISTRIBUTION OF NEW LONG-TERM PUBLIC UTILITY BOND AND NOTE ISSUES, ACCORDING TO INTEREST YIELD AT OFFERING PRICE, 1919-1925

| Percentage Yield | Total Par Value | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1919 | 1920 | 1921 | 1922 | 1923 | 1924 | 1925 |
| 4.26—4.50 | ..... | ..... | ..... | ..... | ..... | ..... | $ 4,500,000 |
| 4.51—4.75 | ..... | ..... | ..... | $ 4,500,000 | $ 200,000 | ..... | 35,400,000 |
| 4.76—5.00 | ..... | ..... | ..... | 1,050,000 | 1,145,000 | $ 42,225,000 | 118,000,000 |
| 5.01—5.25 | ..... | ..... | ..... | 46,402,000 | 62,050,000 | 47,402,300 | 76,780,000 |
| 5.26—5.50 | $ 10,382,000 | ..... | ..... | 111,283,000 | 67,142,000 | 77,656,100 | 135,183,000 |
| 5.51—5.75 | 22,515,000 | ..... | ..... | 90,439,500 | 77,950,000 | 178,778,000 | 129,553,500 |
| 5.76—6.00 | 41,594,000 | $ 5,275,000 | ..... | 32,827,800 | 72,823,000 | 94,863,000 | 90,315,000 |
| 6.01—6.25 | 11,300,000 | 1,400,000 | $110,872,000 | 98,186,000 | 201,404,200 | 123,004,500 | 53,636,000 |
| 6.26—6.50 | 16,361,000 | 8,100,000 | 1,300,000 | 105,892,500 | 75,338,300 | 106,197,000 | 26,885,000 |
| 6.51—6.75 | 8,480,000 | 1,510,000 | 32,825,000 | 34,305,500 | 83,375,000 | 43,882,000 | 19,550,000 |
| 6.76—7.00 | 17,750,000 | 31,613,500 | 10,205,000 | 35,785,000 | 17,313,000 | 54,055,000 | 14,069,000 |
| 7.01—7.25 | 2,250,000 | 28,866,000 | 68,284,000 | 14,687,900 | 3,210,000 | 9,900,000 | ..... |
| 7.26—7.50 | ..... | 42,900,000 | 101,639,000 | 8,750,000 | 65,000 | 600,000 | ..... |
| 7.51—7.75 | ..... | 22,550,000 | 35,598,000 | 1,145,000 | ..... | 1,118,000 | ..... |
| 7.76—8.00 | ..... | 41,280,000 | 33,050,000 | 750,000 | ..... | 18,000,000 | ..... |
| 8.01—8.25 | ..... | 6,750,000 | 17,426,000 | ..... | ..... | ..... | ..... |
| 8.26—8.50 | ..... | 8,234,000 | 9,850,000 | ..... | ..... | ..... | ..... |
| 8.51—8.75 | ..... | 2,250,000 | ..... | ..... | ..... | ..... | ..... |
| 8.76—9.00 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 9.01—9.25 | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| 9.26—9.50 | ..... | 3,500,000 | ..... | ..... | ..... | ..... | ..... |
| Total.... | $130,632,000 | $204,228,500 | $420,949,000 | $586,004,200 | $662,016,100 | $797,680,900 | $703,871,500 |

less. The frequency distribution of the number of issues (long-term bonds and notes only) is set forth in Table V, which shows the largest number of issues (49) to have been between 5.76% and 6.00%, a rate higher than the weighted average yield. The large bulk of the issues, 161 out of 235, were sold at prices to yield between 5.26% and 6.26%. Further analysis of Table V will show the limits of the large bulk of the issues to have moved about a quarter per cent lower each year from 1922 to 1925.

When the *volume* of new long-term bond and note issues is distributed in the same way, the fact that the larger issues appeared on the average at lower yields becomes apparent. The largest volume of financing by long-term bond and note issues was between 5.26% and 5.51%. In 1924 it was between 5.51% and 5.76%. In Table VI the distribution of the volume of new long-term bond and note issues according to yield at offering price is set forth for the last 7 years. The ever-increasing volume issued at a yield of 5% and below indicates clearly the change that has taken place since 1921.

The average rates at which preferred stock was issued during 1925 did not change greatly. In 1924 the simple average yield at offering price was

TABLE VII. SIMPLE AVERAGE YIELD AT OFFERING PRICE OF NEW PUBLIC UTILITY AND STEAM RAILWAY SECURITY ISSUES COMPARED WITH THE AVERAGE YIELD AT OFFERING PRICE OF THE NEW SECURITY ISSUES OF OTHER INDUSTRIES AND ENTERPRISES, 1919-1924*

| Type of Industry | 1919 | 1920 | 1921 | 1922 | 1923 | 1924 | 1925 |
|---|---|---|---|---|---|---|---|
| Public Utilities | 6.68 | 7.64 | 7.45 | 6.34 | 6.31 | 6.14 | 5.81 |
| Railroads | 5.92 | 6.94 | 6.09 | 5.63 | 5.51 | 5.29 | 5.28 |
| Land, Buildings, etc | 6.16 | 6.40 | 7.29 | 6.77 | 6.49 | 6.46 | 6.29 |
| All others | 6.72 | 7.55 | 7.88 | 7.01 | 6.67 | 6.52 | 6.26 |

*Compiled from the monthly record of new capital flotations of the *Commercial and Financial Chronicle*. All types of interest-bearing obligations are included.

7.09%, in 1925 it was 6.98%. The weighted average yield in 1924 was 6.93% and in 1925, 6.70%. The number of issues of record rose from 87 in 1924 to 102 in 1925.

The average rate at which public utilities borrowed capital in 1925 was not only an improvement over 1924 but represented also a relatively larger improvement than took place in the rates at which other undertakings could secure capital (Table VII). The decrease for public utilities was from 6.14% in 1924 to 5.81% in 1925 simple average yield, or .33, while the average for steam railways moved from 5.29% to 5.28%, land and buildings from 6.46% to 6.29%, and all other types of industrial securities from 6.52% to 6.26%.

A number of factors may be mentioned as contributing to a lower cost of money to public utilities. A large part of the absolute decline is obviously attributable to the general decline in interest rates due to an abundance of investment funds. The relatively larger improvement in the rate at which public utilities borrowed, was, however, particularly influenced by (1) the generally changed attitude toward public service undertakings; (2) satisfactory earnings secured by grant of rate increases, slightly falling costs, and greater efficiency; (3) the gradual elimination of the unequal competition of public borrowing by the reduction in the income tax; and (4) the ever-widening market for public utility securities which was given its first impetus by the customer ownership campaigns during the period of money stringency. The recent further reductions in income tax rates may be expected to operate toward even lower rates on public utility borrowing.

# DEPARTMENTS

The departments of the JOURNAL are edited specifically with regard to their interest to the readers who are especially concerned with the economic problems of land and public utilities. For the most part the material for the departments will be prepared by members of the staff of the Institute for Research in Land Economics and Public Utilities.

## BOOK REVIEWS

**This department contains critical reviews and brief notices of new books of interest to the readers of the JOURNAL.**

WALTER M. W. SPLAWN, "The Consolidation of Railroads"..... *Sidney L. Miller* 241

HORACE SECRIST, "An Introduction to Statistical Methods"
HARRY JEROME, "Statistical Methods"..... *Holbrook Working* 243

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## SUMMARIES OF RESEARCH

**In this department are given brief accounts of investigations in progress and statements of tentative conclusions reached in the course of work by the staff of the Institute and others associated with the Institute's work.**

The "Agricultural Ladder" in Foreign Countries... *David Rozman* 249

## COMMENTS ON LEGISLATION AND COURT DECISIONS

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# BOOK REVIEWS

Walter M. W. Splawn. THE CONSOLIDATION OF RAILROADS. *New York: The Macmillan Company, 1925. pp. vii, 290. $3.*

In all discussions of the "railroad problem" in the years since the Armistice was signed, consolidation has held a prominent place. Much has been said upon the subject by men whose knowledge is broad and whose prejudices are few—and much has been said by others. Numerous articles have been published and the Interstate Commerce Commission has gathered an almost unparalleled mass of evidence through its hearings upon the so-called "Tentative Plan." Until the appearance of Professor Splawn's volume on *The Consolidation of Railroads,* however, nothing was available within small compass and accessible to all, which gave in more than skeleton form a presentation of the facts and conclusions relative to consolidation. Dr. Splawn renders the public a real service by offering a book which deals adequately with this subject.

In Chapter I the author considers the various factors which prompted different groups to lend support to the movement for consolidation; among these the "weak line" problem, the general readjustment of rates, expected economies in operation, and an improved general credit standing are most conspicuous. The second chapter is devoted to a presentation of the "Ripley Report," which formed the basis of the "Tentative Plan" later issued by the Commission. In Chapter III are presented the "Tentative Plan" itself, the Oldham Plan for the railways of the country as a whole, and the Holden and Splawn plans for the disposition of the railways in Western territory.

The development of methods of procedure to be followed in Commission hearings is described in Chapter IV, and at this point Dr. Splawn criticizes the resulting record in sharp language. Indeed, he insists that the failure of the record to embody evidence concerning the relative costs of rendering transportation, the value of properties, and the causes of the weakness of necessitous properties is a glaring inadequacy and makes the present record, voluminous though it is, a wholly insufficient basis for the determination by the Commission of any "Final Plan." In Chapters V and VI the author devotes almost 100 pages to the hearings held by the Commission on the "Tentative Plan," here presenting in some detail the attitude of the carriers and of other interested groups upon controverted points. In these chapters the discussions of the Trunk Line situation—particularly as affecting the Central of New Jersey—of the New England tangle, and of the disagreement in the West arising out of the suggested disruption of the "Hill System," deserve especial commendation. They are interestingly and carefully done.

The advantages and the disadvantages of consolidation are then summarized in two brief chapters. A sharp criticism of compulsory consolidation is offered in Chapter IX, together with a portrayal of the evils of its probable ultimate outcome—government ownership. In it, too, appears a fine tribute to the accomplishment of the unconsolidated American railways during the recent years.

In the final chapter of the book, vol-

untary unification of the railways is urged as a proper policy. This unification should continue through a period of years, the movement progressing slowly and along lines compatible with the carriers' interest — always subject, of course, to control by the Interstate Commerce Commission in public behalf. In his concluding paragraphs, the author holds, in answer to Professor Ripley's exhortation to "go forward courageously, adhering to an ideal," that such advance would be foolhardiness. "It would be to say that private initiative, that the enterprise of those engaged in transportation, that eager capital seeking investment along the lines of economic advantage and requirements, that the promoter's alertness, the banker's counsel, the investor's judgment will no longer serve to benefit railroad transportation . . . . that they are now to be thrown into the discard, and there shall, once for all, be substituted for them the findings of a commission based upon a record rather narrow in scope and partisan in content."

This statement seems to sketch, in lines sufficiently bold even for the confirmed adherents of the *status quo*, the catastrophe which awaits the railways if consolidation is pressed too hard. Comparatively few men have reached a final conclusion regarding the soundness of consolidation along prescribed lines and under governmental pressure, either gentle or forceful; but Dr. Splawn has. Indeed, he seems to evidence a certain antagonism to effective public participation in any unification program. Whether this antagonism is due to an inherent conservatism, to a feeling that no plan would do justice to the Southwest of which the author's own state is a considerable portion, or to some other factor, one can only surmise. Apparently, however, his opposition to consolidation as a method of escape from certain difficulties leads him to minimize, if not almost ignore, the existence of problems for the solution of which, if he denies the adequacy of consolidation as a remedy, he offers no constructive suggestions, let alone a definite plan. Dr. Splawn seems to find nothing good in the Commission's "Tentative Plan." He indicates that the lack of interest on the part of the strong roads in taking over the weak is clear evidence of the futility of consolidation by any set plan. Does he not forget that mere admonition is unlikely to persuade the able to assume eagerly the burdens of the weak, and, too, that public policy might be promoted better by its exercise of initiative than by action "after the fact"?

Aside from the antagonism to consolidation which the reviewer feels is characteristic of the book, there are other criticisms of a minor character which may be made. No book dealing in detail with railway consolidation should be issued without a wealth of maps, for the "layout" of railway lines is familiar to few; yet this volume contains not a single map to illustrate or clarify the text. Then, too, the book was poorly proof-read. Some of the surviving errors are not serious, as the repetition of "Colorado Southern" in several places, but others are certain to cause difficulty for the lay reader. For example, reference to the "Baltimore & Maine" and the "Baltimore & Albany," and particularly to the plan to group the New York Central with the Baltimore & Ohio (p. 157), tend to confuse the reader.

However, despite a possible overemphasis of the obstacles to consolidation, with an accompanying underemphasis of certain difficulties in the present situation, and despite its textual

errors, *The Consolidation of Railroads* merits wide reading. Dr. Splawn has given the public a discussion of a timely subject which may aid in shaping legislative policy. Particularly it may serve to discourage too hasty and ill-considered pressure upon the carriers to align themselves in a certain set manner. His work, the more because of its touch of bias against consolidation, is especially recommended to those who believe that unification is a panacea for all major railway ills now known, and a "charm" which will give immunity from other ailments through future decades.

SIDNEY L. MILLER

Secrist, Horace. AN INTRODUCTION TO STATISTICAL METHODS. *New York: The Macmillan Company, 1925. pp. xxxiii, 584. $4.*

Jerome, Harry. STATISTICAL METHOD. *New York: Harper & Brothers, 1924. pp. xxiv, 395. $4.*

Both these books clearly deserve a place among the half-dozen new American texts in the field of elementary economic statistics which may be ranked as excellent. The writers, though not distinguished as mathematical statisticians, bring to the subject two requisites for a satisfactory elementary treatment of the increasingly important mathematical phases of the subject: a knowledge of the elementary methods and principles of mathematical statistics, and an understanding of the difficulties of the average beginner. As statisticians of experience and recognized standing, their choice of subject-matter and emphasis commands respectful consideration.

Following his introductory chapter on "The Meaning and Application of Statistics and Statistical Methods," Professor Secrist proceeds to an unusually thorough discussion of the problems which may be encountered in the first steps of a statistical investigation: the choice and critical appraisal of secondary data, in case the basic data have already been collected; and the preliminary analysis, and problems and methods of collection, where the data must be sought from original sources. A chapter follows which emphasizes the need for care in the choice and definition of units of measurement and in the selection of ratios or coefficients in which to express the data for presentation and analysis. The principles and cautions contained in these chapters are further emphasized and illustrated by a chapter on "Methods in a Study of Wages."

Professor Jerome covers substantially the same material, but less completely and in considerably less space. The subject of collection of data is transferred to the end of the book, which seems to me preferable, and ratios and coefficients are treated in a chapter following the discussion of averages, under the general head of "Analysis," where they logically belong.

Professor Jerome's inclusion of a discussion of sampling as his second chapter seems a particularly happy arrangement. Some idea of the nature and problems of sampling is essential, I believe, to an understanding of subjects treated in every one of the subsequent chapters, and, while the theory of sampling cannot be treated with any thoroughness at this early stage, the statement of the problem and of the "law of statistical regularity" serves a very useful purpose.

The subjects of classification and tabulation and graphic presentation are treated carefully and at length in both texts. The numerous excellent charts included by Professor Jerome should prove particularly valuable, though many statisticians will not approve his

general use of slanted lettering. Professor Secrist's reliance on typesetting in place of hand-lettering in the majority of his charts detracts considerably from their usefulness as models for class use, and many of his charts are subject to the criticism that too many background lines are shown or that they have been reproduced on too small a scale. There are few charts in Secrist's book that most statisticians would choose as models.

The notable developments of the past five or ten years in the methods of analyzing time series are given very full consideration in both texts, although Secrist omits consideration of the useful device of correlating first differences. The increasing use of correlation methods and interpretations based on the theory of probability is given recognition in the form of discussions considerably more complete than appear in earlier American texts. In the treatment of index numbers, Jerome has done especially well in summarizing Irving Fisher's time-reversal and factor-reversal tests for index number formulas, but neither Jerome nor Secrist can be said to have solved the very difficult problem of condensing the results of Fisher's study or of coordinating them with the results of other studies.

Teachers who have used the first edition of Secrist will look with especial interest to the style of the new edition. The revision has extended even to a careful rewording of sentences in those parts which remain otherwise unchanged, but awkward and difficult sentences are still unfortunately frequent. Secrist's characteristic tendency to abstract statement and generalization remains conspicuous and renders the book extremely difficult for a beginner, though it will probably add to its interest for many more mature and experienced readers. Some of his generalizations on the subject of graphic presentation should be particularly useful, even for the beginner.

This is not the place for a discussion of the merits of the choice of subject-matter and emphasis in the two texts under review, but it seems pertinent to suggest that the treatment of averages and dispersion might be made both easier and more effective if prefaced by a more adequate discussion of frequency distributions and a description of the forms more commonly met with. As it is, the student is admonished to choose carefully the form of average to be used without being given an adequate understanding of the purpose of averages or a sufficient basis for making the choice. Urging upon him problems of choice with which he is unable to cope, results commonly in a failure to grasp the significance of certain very simple criteria of choice which are nevertheless highly important. In the reviewer's opinion, the relatively simple subject of averages is the least satisfactorily treated in these, as in several other of our best elementary texts.

HOLBROOK WORKING

Long, John C. PUBLIC RELATIONS. *New York: McGraw-Hill Book Company, Incorporated, 1924, ix, 248 pp. $3.*

*Public Relations* is a useful work. The author and publishers have done a real service in making it available.

The book presents the essentials of practical and effective publicity, as an agency in the public relations work of public utility and other business institutions, with a clearness and completeness to be found in no other work that I have ever seen. Sanity and intelligent practicality are its characteristics; on every page it justifies its sub-title, "A Handbook of Publicity."

The work covers practically every phase and detail of the field; the mediums for effective publicity—newspapers, feature syndicates, magazines, trade and technical publications, house organs, the pulpit and platform, motion pictures, radio, and so forth—as well as ways and means of using each medium intelligently and, therefore, effectively for a variety of enterprises—corporations, retail stores, financial institutions, chambers of commerce, trade associations, philanthropic enterprises, and individuals.

These conclusions follow a careful reading that was begun in a mood of extreme skepticism. This is not to say that Mr. Long has evolved anything sensationally new. He has done better than that. He has put together what every competent publicity man knows—"competent" including honesty and integrity of purpose, as well as facility in execution—and he has done it clearly, succinctly, and sanely. The most seasoned publicity or public relations worker will find the first chapter worth frequent rereading as an aid to keeping his point of view and perspective properly adjusted; he will find in the succeeding chapters interesting reminders of details which may not be constantly in mind.

This first chapter has some especially interesting paragraphs on "Listening as Important as Telling." The dividing line between advertising and legitimate publicity is clearly drawn, the attitude of really representative newspaper editors in this relation is reflected, and a practical working guide or code of ethics for public relations or publicity work is offered as follows: (1) Public relations or publicity material must be true; (2) It must be honestly presented without attempt to conceal the source; (3) It must be interesting; (4) It must be intelligent.

The book will not make a high-geared "expert" out of a novice, but it will help anybody who has to do directly or indirectly with entirely honest public relations or publicity work. If it were read generally and accepted by industrial and commercial executives to whom public relations or publicity workers report, we would soon hear less about public misunderstanding of, or hostility to, "big business."

BERNARD J. MULLANEY

Record, S. J., and Mell, C. D. TIMBERS OF TROPICAL AMERICA. *New Haven, Connecticut: Yale University Press, 1923. 610 pp. $10.*

This is the first attempt in any language to give authentic and detailed information on the timber resources of the neighboring countries to the south. The book consists of two parts. The first part, comprising 82 pages, contains descriptions of the tropical American countries with respect to their forests, climate, topography, population, and other factors involved in the exploitation and development of timber resources.

One is impressed with two apparently incongruous statements, namely, the large amounts of standing timber, including a great diversity of species, in the tropics, and the importation of oak and pine lumber into the tropical countries from the United States. This situation exists because the exploitation of forests in Mexico, Central America, South America, and the West Indies has so far been mostly for what might be called precious woods, such as mahogany, lignum-vitae, logwood, rosewood, and Spanish cedar, for export, leaving the home lumber industry undeveloped. Hence, the coastal regions depend to a considerable extent on the sawed timber and lumber from the United States for

building purposes. Except for the cedar, pine, spruce, fir, and oak on the highlands of Mexico and Central America, a resident of this country does not find familiar tree species in the tropics. The great diversity of timber species found there, while affording a wide variety to choose from, is a handicap from the point of view of economical exploitation. Since any particularly desirable kind of tree is scattered among many less desirable species, and labor is poor and transportation facilities are inadequate, timber exploitation in the tropics is very expensive.

The following statement summarizes the situation so far as augmenting our timber supply is concerned: ". . . . the forests which offer the best opportunities, from the standpoint of supplying the United States in the early future, are located in Mexico, Central America, northern South America, and the lower Amazon. Southern South America requires more timber than it can produce, while most of the timber stores of the upper Amazon will await the needs of the distant future."

The second part of the book, comprising 472 pages of text with numerous illustrations, contains descriptions of hundreds of the more important species of timber. One need not read far before he realizes that the common impression that tropical timbers, as a rule, are exceedingly hard and heavy, is erroneous. Not only do the heaviest timbers, some of which will sink even when dry, grow in the Tropics, but also the lightest, some being lighter than cork. Woods of all intermediate gradations in weight also are found.

The descriptions of the timbers include the common names—in which the native dialect is rich—occurrence, size, properties, appearance, minute anatomy, and uses. The descriptions of the wood are in nearly all cases based on authentic samples technically analyzed by Professor Record, the senior author. They savor of the accuracy characteristic of scientific research and lack the ambiguities and generalizations so often found in trade papers. Five species of mahogany are recognized by botanists, but the lumber trade does not differentiate them, except that the species growing in the West Indies is heavier and harder than that of the mainland and is usually referred to as Cuban mahogany. Mahogany grows from the southern tip of Florida and southern Mexico to Venezuela and Peru, including the West Indies, but not in Brazil and countries farther south.

The authors lament the meagerness of exact data concerning the stands, availability, and characteristics of tropical timbers and point to the need of this country's making a comprehensive study of those timbers for the protection and development of its own industries that depend on wood as a raw material.

Just one criticism the reviewer wishes to make—namely, that a map should have been included to refresh the reader's memory of the geographical features of the countries described. With the exception of this minor omission the book will be found an excellent reference, not only for those wishing to exploit available foreign species of timber, but for the economist desiring to study the possibility of augmenting our vanishing timber supply by importations and the extent to which it is necessary to rely on our own potential timber lands for future supplies. One thing seems certain, there is no possibility of a flood of cheap lumber coming in from the equatorial countries and ruining our lumber-producing industry.

ARTHUR KOEHLER

Crum, W. L., and Patton, A. C. AN INTRODUCTION TO THE METHODS OF ECONOMIC STATISTICS. *Chicago: A. W. Shaw Company. 1925. 493 pp. $6.*

This volume was prepared for "students who are interested in the application of statistical methods to economic problems," but it should also be useful to the working statistician. Part I, "Statistical Data," deals with the sources, collection, tabulation, and charting of statistical data; Part II, "General Analytical Methods," with averages, dispersion, the normal law of error, and correlation; and Part III, "The Analysis of Time Series," with index numbers, trends, seasonal variation, and cyclical fluctuations, including "Lagging Correlation and Forecasting Sequence." The closing chapter appraises the usefulness of various "specialized methods," such as statistical deflation. The hundred pages of appendix contain tabular data in support of text charts and for practice work; useful suggestions for laboratory practice, particularly with regard to the transcription of data and computations; and brief mathematical appendices giving the proof for some of the formulas for frequency curves and correlation coefficients. A brief bibliography, a table of four-place logarithms, and a list of symbols complete the appendix material. There is no list of the charts and tables.

On the whole, the subject-matter of this book is not new, but in some respects the treatment and emphasis are different from that of other texts in the same field. Economic statistics are used almost exclusively for illustrative purposes. The illustrative tabular material is abundant and the book is copiously illustrated with simple charts, based upon well-selected subject-matter.

Among the noteworthy features in Part II, dealing with "analytical methods of summarization and interpretation," are explanations of the "skeleton method" of computing the mean, the standard deviation, skewness, and the coefficient of correlation; also a good discussion of fitting a normal curve. The introduction of a chapter on the correlation table prior to the discussion of the coefficient of correlation helps to clarify the concept of correlation. The treatment of "Further Correlation Methods" is not quite so effective. Also, the introduction of exponential and inverse-exponential averages, with little accompanying explanation of their use, is of doubtful value in a student textbook.

In a treatise which emphasizes the use of statistical technique in analyzing economic phenomena, there is much to be said for the author's method of segregating the treatment of time series (see Part III). The value of the book, particularly as a reference text for the practicing statistician, would be increased by a fuller discussion of the devices other than the link-relative method for computing typical seasonal variation, and, particularly, by an explanation of the concept of changing seasonal variation, to the development of which the authors have themselves contributed. Likewise, the moving average is dismissed with somewhat too scant consideration.

This book is intended for those who have no mathematical training other than elementary algebra and a knowledge of logarithms, and complicated mathematical formulas and proofs are relegated to footnotes or the appendix. Portions of the text will, nevertheless, be somewhat difficult reading for those who are not mathematically minded. Paragraph headings to supplement the numbered section divisions would make

the appearance of the text less formidable to the student.

Throughout the book the explanation of computation processes is strengthened by illustrative working tables, the terminology and classifications are logically coordinated, and care has been taken to point out the limitations of the several methods employed.

There are few typographical errors and these are rarely such as to cause confusion to the reader. The caption of Table 64 should read "Dollar Intervals." In the middle of page 297, $\frac{p_1}{p_0}$ should read $p_1q_0$.

This volume is a useful addition to the long list of treatises on statistical method which have appeared within the last year or two, and should aid in giving an impetus to instruction and practice in the application of the quantitative method to the analysis of economic problems.

HARRY JEROME

# SUMMARIES OF RESEARCH

## THE "AGRICULTURAL LADDER" IN FOREIGN COUNTRIES

ONE of the devices which economic research is taking over from the research methods in physical sciences is that of setting up working hypotheses to be tested by the facts found in the course of the investigation. This working hypothesis method is being applied to the comparative study of problems of farm tenancy in various countries and their bearing upon land tenure in the United States. The purpose of this note is to state these tentative assumptions and invite criticism of them.

One of the first things that such a study of farm tenancy should recognize is the special significance of the economic and social structure which has gradually evolved in the United States. In other words, the achievements of modern democracy which have been realized and built into American institutions form a setting that throws new light on the situation and outlook of land tenure. The study of land relationships in a democratic state has become an important problem only in the last few decades, but now it is growing in importance as democracies are increasing in number.

American land tenure is primarily determined by the advancement of the farming population from the position of laborer or tenant into that of full owner or retired farmer. This movement is commonly called the "agricultural ladder" and is in some respects more conspicuous in America than in any other country. This situation, where actual cultivators through their efforts and ability find an opportunity for personal promotion and the attainment of a certain economic independence, seems to be desirable on many grounds; first of all, probably, because it keeps in the agricultural industry a larger proportion of able and efficient workers. In comparing tenancy of the United States with that of other countries it is thus of great importance to investigate to what extent the progress of cultivators on the agricultural ladder is secured by the existing social and economic conditions.

What conditions prompt and facilitate progress of the farming population along the "agricultural ladder"? What institutional arrangements aid this process? These brief notes do not undertake in any way to pass judgment on the superiority or desirability under all circumstances of the American land system in preference to other possible arrangements in land relations. Assuming, however, that we desire a large proportion of able and efficient farmers and that advancement along the "agricultural ladder" is the best means to that end, we have in mind four factors which seem especially essential in fostering those conditions: (1) the diffusion of landownership, (2) free land transfer, (3) an educated rural citizenship, (4) a high wage level and the possibility of individual advancement in a competitive society.

### *Diffusion of Landownership*

From the American standpoint, the diffusion of land among the actual culti-

vators seems to facilitate the desired advancement on the "agricultural ladder." Past experience in this country as well as in some other countries indicates that this feature is basic to a democratic system of land tenure. Nothing has probably been so instrumental in fostering the democratization of this country as the influence of the West settled by cultivator-owners. As a result of the land policies of the United States, diffused landownership and small-scale farming have become the prevailing system in American agriculture, thus establishing the most important basis for effective advancement along the agricultural ladder.

In many other countries this has not been the case. In these countries the development of land tenure has not brought about a distribution of landownership that seems adequate from the standpoint of the agricultural ladder. In a number of new countries like Australia and New Zealand the concentration of land in large holdings was at the very beginning an outstanding feature of land tenure, and in some cases seemed to interfere with an orderly settlement by small cultivators. The problem of tenancy, nevertheless, has not yet become very acute in these countries, since large land areas are still obtainable on a small payment, and afford a natural outlet for the landless agricultural population.

As to the opportunities for advancement of the actual cultivator along the agricultural ladder from the position of laborer and tenant to that of a full owner, various countries may be classified roughly into three distinct groups:

1. In some countries large landownership and large-scale farming predominate, and there seem to be slight or no possibilities of advancement without an intervening force.

The land tenure of England before the World War may well be examined as representative of this first group. As a rule it is very difficult for an agricultural laborer to become a tenant or an owner without outside aid. The agricultural laborer in England is frequently doomed to remain in the same status from one generation to another. A great proportion of the land area in England is held in large units, remaining for generations in the same family. In order to bring land on the market in adequate units governmental interference has been required sometimes, and has occurred either indirectly through taxation or directly through drastic legislative measures. But even then the process of promoting diffused ownership is not completed. The wages of laborers are not much above the level of subsistence, and further aid of the government will be needed, if they are to succeed in climbing the agricultural ladder. The problem of England in instituting an adequate system of land tenure is more complicated than in many other countries, due to farming on a large scale by farmers employing agricultural laborers. Any scheme of adjusting present land relationships along American lines must, therefore, take into account the agricultural laborers who comprise over two-thirds of the entire agricultural population. The land system of England is thus an illustration of a system of tenure in which the movement along the agricultural ladder could not easily take place on any considerable scale.

2. In other countries small and large ownership, but small-scale farming, predominate; advancement seems possible, although with certain limitations.

Probably the best illustration of the second type of land tenure is found in the agricultural organization of Bel-

gium. Large ownership is still a dominant feature in a considerable part of the country. It is to be understood that large ownership in Belgium does not necessarily mean the same as in this country; under intensive cultivation of the Belgian soil a holding of over a hundred acres is considered in many districts to be a large estate. Farming in Belgium is, however, small-scale agriculture with a high percentage of tenancy.

One might add, however, that numerous small owners do exist in Belgium, but their holdings do not surpass in many cases two or three acres and are nothing more than allotments for their dwellings and small gardens. In addition to their own small holdings the Belgian peasants usually cultivate small parts of some large estate and work on it with their families. Under these circumstances every laborer may have the prospect of becoming a tenant in the course of time, but apparently as a general rule he can only become a landowner in so far as the meager supply of owner-operated land comes on the market or when some large estate is subdivided into smaller units. As a matter of fact, due to the great demand and higher prices for small holdings, the subdivision of land of the large estates seems to be going on constantly, being undertaken either by the landlords themselves or by private companies and individuals.

In comparison with the English system of land tenure, the Belgian system represents a marked advance from the American standpoint. The movement along the agricultural ladder is here already in operation, although with certain limitations. It thus appears that a high percentage of tenancy in countries like England, and to a certain extent Belgium, is caused in part by the scarcity of land for the cultivators who wish to advance along the agricultural ladder.

3. Finally in some countries small ownership with small-scale farming predominates; under these conditions advancement is possible along the agricultural ladder.

Conditions of land tenure in France may be taken as representative of land relationships in this third group of countries. As compared with England and Belgium, concentrated ownership has been eliminated to a considerable degree through the dissolution of large estates and suppression of legal obstacles to small holdings at the time of the French Revolution. Although large holdings are found in many regions of France, they do not appear to be a serious problem in the development of diffused landownership. Small-scale cultivation is carried on either by owners or tenants in a major part of the country. The agricultural laborer and tenant, through efficiency and effort, may rise to a higher level, although in practice landownership is acquired more often through inheritance than through personal achievement. It will thus be seen that, as far as land tenure is concerned, progress on the agricultural ladder seems possible in France, but shortcomings in other directions prevent effective advancement. Failure of the French nation to provide adequate social conditions for the development of its farming population is believed to be mainly responsible for this situation.

### *Free Land Transfer*

The existence of small-scale ownership in any country does not in itself secure an efficient operation of the agricultural ladder. If the owner of a certain land unit is not allowed to alienate

it freely, the effect on supply of land for the advancing cultivator will be similar to that of a concentrated ownership. To consider land as an object of free transfer from one individual to another like any other commodity in commercial relations has become possible only in the most advanced and progressive countries. The United States is a notable example of complete freedom in land transfer. Restrictions on land transactions exist, however, in many European and Eastern countries.

But it may not be wise to make too sudden changes in this respect. As an example of an undeveloped country which has restricted the transfer of land, India may be mentioned. When the British Government assumed control over Indian provinces, it attempted to introduce in many localities complete freedom in land transactions. As the result of this innovation, numerous land holdings passed into the hands of money lenders and the more efficient cultivators, and the percentage of tenancy rose to such an extent that in the year 1901 it became necessary to pass an amendment in restraint of free trade in land. Due to the ignorance of the population, it was thought necessary to reverse the policy and retain land artificially in the hands of the peasants.

The evils of restricted land transfer are to be seen in Russia before the war where common ownership and periodical redistribution of land in the communes confined peasants to a miserable existence on constantly diminishing land holdings as population grew in numbers.

Another important limitation on free transfer and free land relations is found in the restrictive inheritance laws which exist in various countries. It is commonly believed that the law and custom of primogeniture, together with entailed estates, in England, prevents the dispersion of land and promotes its concentration in large tracts.[1] On the contrary in France as well as in Belgium rural estates are compulsorily subdivided in equal parts among the heirs. Likewise in India by the Hindu law of inheritance in the Bombay Deccan every male member of the family obtains a share in the ancestral property, not on his father's death, as is usually the case, but at birth.

Apparently one effect of restrictive laws interfering with economic adjustments of land relations in a number of countries, is to make possible a high percentage of ownership and to suppress the growth of tenancy. On the other hand, this situation tends to encourage the substitution of small, inefficient peasant proprietors for a more desirable type of prosperous farmers. In marked distinction with this it seems that in the countries with free land relationships, always provided favorable social and economic conditions are present, opportunities are given for the movement of land into the hands of a more efficient part of the farming population through the operation of the process described as the "agricultural ladder."

### *Educated Rural Citizenship and Possibilities of Economic Advancement*

It has been mentioned that the institution of free land relationship is possible only in the most advanced communities. Where the rural population is still in a backward condition, all kinds of safeguards for retention of the land in the hands of the actual cultivators must be provided for and these become incorporated in the system of land ten-

[1] Certain changes in these laws and customs have recently been enacted by Parliament.

ure. Since the end of the Great War, many Eastern European countries, through drastic revolutionary measures, have changed their forms of land tenure in favor of cultivating ownership. The dominant motive and purpose of all these changes seems to be to keep national land areas in the hands of tillers of the soil.

With diffusion of landownership in all these countries, as well as in older European civilizations, their problem of land tenure becomes similar to the American problem. The rise of the intellectual level of the rural population is becoming the most important issue in the minds of those leaders and statesmen who strive to build a firm foundation for the newly introduced democratic systems of land tenure. In order to avail themselves fully of all the advantages of scientific methods of conducting farming operations either in the technique of production or business side of farming, an educated rural citizenship becomes an indispensable factor. In the past the majority of European and other countries have neglected the task of developing the intelligence and the self-reliance of the farming population. Especially in the countries of Eastern and Southern Europe rural civilization is in the most backward state. Ignorance and backwardness of the farming population in these countries block almost entirely any adequate advancement in personal status and achievement of economic independence.

### *The Wage Level*

Finally, in a community with small land holdings, free land transfer, and an intelligent population, the advance of agriculturists along the ladder to ownership seems to depend to a large extent on whether the two main factors—land values and wages—are kept in a certain equilibrium. It has been observed that in Belgium, due to the growth of population beyond the productive means of the country, land values and rents rapidly rise with the growing demand on the part of numerous individuals seeking employment, whereas the wages do not show any considerable increase in spite of a marked industrial expansion. It is becoming more and more difficult for a Belgian laborer to accumulate sufficient surplus from his meager wages to become an owner or even a tenant of a piece of land. Practically the same situation is found in Italy and in many other European as well as Oriental countries.

If the foregoing analysis is correct, the absence of any one of the four factors discussed tends to retard the advance of the farming population in other countries along the agricultural ladder, which seems to be the American process and ideal. Apparently, also, these factors and the process which they help are implicit in the democratic system of land tenure that has grown out of American conditions and institutions. If other countries wish to follow the American policy, due attention should be given to these factors. Nevertheless, under other conditions and institutions, the same end might be reached by other means than the American; and even a different system of land tenure might be thought more desirable. Such considerations are not involved in this note, which is confined merely to a statement of the chief factors facilitating movement along the agricultural ladder after the American fashion and the lack of these factors or obstacles thereto which prevent other countries from patterning their system of land tenure after the American plan.

DAVID ROZMAN

# COMMENTS ON LEGISLATION AND COURT DECISIONS

## DEBT READJUSTMENT *VERSUS* LIQUIDATION OF FARMERS' CONTRACTUAL RELATIONS

DAY by day farmers and bankers in the Middle West are falling under their financial burdens. The bankruptcy courts work slowly. Farmers are put out of business. Banks are closed for liquidation. Much of the paper held by the bank bears the names of the farmers who have been driven to the wall. At sheriffs' sales the property sells at low figures. The loss due to liquidation through bankruptcy proceedings adds greatly to the losses already sustained because of deflation and because of buying supplies at high price levels and selling products at low price levels. Often, if not usually, these additional losses fall upon the creditors rather than the debtors. The financial losses are accompanied by loss of courage, loss of moral stamina, and loss of ideals and ambitions. In all, the loss to human society is appalling.

Whether the financial situation of farmers was due originally to buying and feeding too many cattle, to buying too much land, or to the gradual losses from year to year because of unfavorable price ratios is a matter of little importance for the purpose of these notes. Our interest at present is in contrasting from the scientific point of view two currently used methods of changing contractual relations between creditors and debtors in agriculture.

This unusual situation, which is especially acute in the "Corn Belt," has arisen out of a variety of circumstances and has had causes of many different sorts. Over some of these the farmers have a certain amount of control, especially so far as land purchases are concerned. Yet even in cases of this kind the real situation was not often understood and many farmers were caught in a general movement and carried along by the current. General inflation and then deflation have been causes of this situation, and over these and many other factors the farmers have had little or no control. Neither education nor experience have taught the farmers how to adjust themselves to such new conditions. In any case, vast numbers are insolvent and great losses have been sustained.

How can we get from where we are to the place we want to be in the future with least expense and least damage? Must bankruptcy disaster continue?

Is it possible to revise the contractual relations and thus bring about a better situation for all concerned? This whole subject of contract has not received adequate treatment from the economic point of view. The sacredness of contract must be frankly admitted. It is demoralizing to the individual to regard his contracts lightly; without contract obligations we cannot make plans for the future. A general looseness in respect to the obligations of contract means economic chaos and disaster, for in modern society we must be able to rely on the fulfilment of contractual agreements if we are to be prosperous. Less and less do

we live from hand to mouth and more and more does the present stretch out into the future. We must be sure that agreements now made will be carried out 10, 15, 25, or 50 years from now.

The sacredness of contractual relations is brought out in the Psalms 15:4: where the righteous man is described as one "that sweareth to his own hurt and changeth not." It is said that Jefferson wrote on the margin of his Bible opposite this statement, "the description of a perfect gentleman."

On the other hand, there come times when the fulfilment of a contract is an impossibility. This impossibility may not involve any moral turpitude, certainly not to a degree which should disgrace a man or injure his position in the community. The present writer has no sympathy with the rigid view held by some English writers that a bankrupt ought to be deprived of his rights as a citizen and be registered as a man forever disgraced. This is individually and socially injurious and ethically wrong.

Of course, in our bankruptcy proceedings in this country we have a revision in contractual relations, but that is not entirely satisfactory. We have also cases of bankrupt communities—communities which are unable, or claim they are unable, to fulfil their obligations. Instances may be recalled of American states which have wholly or partially repudiated their obligations. Such actions are not socially beneficial. There ought to be some way of bringing about adjustment in the interest of all and letting the individuals and communities who want to do the right thing go ahead with hope and courage.

Conditions like those described have arisen with respect to relations with European creditors, and the nations have undertaken the revision of contractual relations under the so-called Dawes Plan. Fundamentally that is what the Dawes Plan means—the revision of contractual relations. By this plan the Shylock principle was abandoned and "ability to pay" was made the basis of settlement.

Does not this suggest a parallel for agriculture? If a commission could be brought into existence which would readjust the affairs of the farmers and bankers of the Middle West on the basis of ability to pay, it would save millions in money and do unmeasured good in reestablishing the morale of the people.

The policy here suggested is a purely voluntary system for revision of contractual relations under certain situations. The idea is that in a state like Iowa, for example, a commission should be formed of men of the highest standing and integrity and that these should appoint arbitration boards to consider the needs of the situation. There might be one central board and other local boards, according to the peculiarities of the situation. The idea is to have insolvent debtors come before these boards and ask for readjustments of their indebtedness. The creditors would also be privileged to take the initiative. In any case, the creditors of any individual should be called in by the arbitration board. Let the assets be appraised. In the vast majority of cases the assets are far more valuable on the basis of a going concern than on the basis of liquidation. In the case of a farm this means leaving the farmer on the land and adjusting his indebtedness on the basis of his ability to pay. Where liquidation would yield more for the creditors, arbitration would not be

practicable. Generally this would be the case only if the farmer were incompetent. In all cases of competent farmers the creditor would be assured larger payments than liquidation would yield and at the same time the farmer could proceed under conditions more favorable to him than disrupting his business and making a new start.

This evaluating of the assets and adjusting of the indebtedness of farmers would do much to save the banks. It would put much of the bank paper on a known basis. A certain shrinkage of nominal assets would be inevitable, but the new paper would be good. This system would yield the banks much more than liquidation would.

This is only a suggestion. Is there not a way of working this out in the interest of the farmers, creditors, and the general public? The economic gain would be great. The moral gain would be even greater.

The proposed policy is not in principle entirely new and untried. Many individuals are already operating on this principle. One case has already come to the attention of the writer. A mortgage, hitherto unacceptable as collateral, was scaled down to a point where it was good bankable collateral. The creditor was better off; the banker was better off; while the farmer took hold of his task with new hope and courage. Had the old situation remained, we would have had a mortgage of doubtful value; we would have had the bank with unacceptable paper; we would have had the farmer without a farm; and perhaps a farm without a farmer. How much better the situation was after the adjustment of the contract had been made. Many more should do what was done in this case, particularly if ways and means were established to facilitate such readjustments and to see that every one in the case was fairly treated.

Possibly an educational campaign would lead to debt adjustments between creditors and debtors without the machinery of a debt commission. The important things are the use of maximum intelligence and maximum humanity in making readjustments, and recognition of the social utility of a modification of contract relations rather than liquidation followed by new contracts which may be worse than before. From the scientific point of view such a policy is not new and untried as an individual matter. It can only be tried as a public policy in this country, however, if we recognize that contractual relations in the economic sense are, after all, human relations properly subject to change with new economic conditions and in the interest of society as a whole.

RICHARD T. ELY

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